Integrating Conservation and Sustainability: Strategies for Species Protection and Collaborative Action

by Amanda Matthews

supervised by Gail Fraser

A Portfolio submitted to the Faculty of Environmental Studies in partial fulfillment of the requirements for the degree of Master in Environmental Studies York University, Toronto, Ontario, Canada

November 25th, 2024

Abstract

Globally, species face significant challenges due to human activities, including habitat loss and climate change. These challenges require species to compete for diminishing resources or relocate to less suitable habitats, often at a high energetic cost. Humans are the primary drivers of these challenges and are responsible for mitigating their impacts. This requires a collaborative effort involving all sectors of society, including businesses, to implement sustainable practices and support conservation initiatives.

This portfolio investigates human-led conservation efforts, focusing on artificial nesting to support Common Terns at Tommy Thompson Park in Toronto, Ontario. It aims to evaluate nesting productivity and the influence of threats such as predation and predator presence on fledging success. By assessing the effectiveness of these conservation measures, the study contributes to understanding how targeted interventions can enhance species survival.

The portfolio also examines the evolving landscape of sustainable business practices by reflecting on Environmental Management Systems (EMS) roles and partnerships with Non-Governmental Organizations (NGOs). It explores how voluntary frameworks like ISO 14001 have influenced corporate self-regulation, emphasizing their limitations in achieving meaningful environmental impact without robust regulatory support. The analysis highlights the potential of NGO-business collaborations to bridge resource gaps and drive sustainability efforts while addressing the ethical and practical challenges these partnerships face. Ultimately, the paper underscores the urgent need for systemic change, regulatory reinforcement, and a shift toward long-term ecological resilience to address the complexities of sustainability.

Finally, the portfolio concludes with a proposed business pitch for the Toronto and Region Conservation Authority (TRCA). Based on insights from the literature on effective pitches, the proposal seeks to secure funding to support conservation and sustainability initiatives. This integrated approach underscores the importance of aligning conservation science with practical, collaborative efforts to address environmental challenges.

Forward

This portfolio critically examines the multifaceted challenges associated with species protection, which has captivated my interest since childhood. My fascination with wildlife conservation has consistently compelled me to interrogate humanity's role in safeguarding species. During my tenure in the Master of Environmental Studies (MES) program, the interdisciplinary framework of the Faculty of Environmental Studies provided a dynamic platform to refine and expand my research interests. In the program's first summer, I researched wildlife species at Tommy Thompson Park, including common terns and, subsequently, great horned owls. This experience significantly deepened my understanding of environmental ecology and honed the research methodologies essential for effective environmental protection, as explored in Chapter 1.

Moreover, my engagement with business courses during my initial year in the program introduced me to diverse perspectives on green business practices and sustainability strategies. These insights prompted me to investigate the intersection of business operations and environmental sustainability, culminating in the development of Chapter 2, which examines how businesses can meaningfully contribute to sustainable practices. Further, recognizing the importance of collaborative efforts between businesses and non-governmental organizations in fostering sustainability, I explored funding acquisition and partnership-building mechanisms. This inquiry informed the creation of a business pitch proposal for the Toronto and Region Conservation Authority (TRCA) to local businesses, detailed in Chapter 3.

This portfolio reflects the interdisciplinary nature of my academic journey and highlights the vital interplay between ecology, sustainability, and business innovation in addressing the pressing challenges of species protection. The three core components of my MES Plan of Study are (1) conservation, (2) Environmental Management Systems (EMS), and (3) businesses' responses to environmental policy. This portfolio focuses on the first two components, addressing critical learning objectives related to environmental sustainability and effective management strategies. Specifically, Learning Objective 1.2, which emphasizes "developing practical skills in environmental protection necessary for implementing management strategies," is explored through in-depth wildlife research. This includes an analysis of artificial nesting substrates, a detailed examination of common tern ecology, and an evaluation of nesting productivity requirements.

Furthermore, Learning Objective 2.2, which aims "to identify, via past literature, positive environmental impact efforts through Environmental Management Systems (EMS) and determine which ethical approaches hold the greatest potential for conservation," is examined through a comprehensive literature review. This review investigates the role of businesses in facilitating societal adaptation to environmental challenges, including climate change. It evaluates the effectiveness of EMS as a mechanism for achieving meaningful conservation outcomes.

The research presented in this portfolio underscores the integration of scientific inquiry with practical applications in conservation and business sustainability. It advocates for collaborative approaches that engage multiple stakeholders and incorporate scientific evidence into ethical and strategic business practices. Through this work, I aim to advance the understanding of species protection strategies and the role of businesses in promoting ecological stewardship. This portfolio can hopefully represent a foundation to drive efforts in innovative environmental sustainability and conservation solutions. The knowledge and skills acquired through the MES program have provided a robust framework for exploring the intersection of ecological preservation and ethical business operations. This research fosters meaningful dialogue and actionable strategies to address pressing environmental challenges while promoting sustainable business practices.

Dedication and Acknowledgment

I would like to begin by expressing my deepest gratitude to my sister, Alycia. Your unwavering support throughout my Master's journey has meant the world to me. Thank you for providing me with endless laughter and our never-ending adventures. Your presence has been a constant source of strength and joy, and I could not have done this without you. To my parents, thank you for your unconditional love and encouragement. Your belief in me has been the foundation of my success, and your support for guiding me through even the most challenging moments. To my grandmother, thank you for showering me with care and kindness. You have been my biggest cheerleader, and I am so grateful for you.

I would also like to extend my heartfelt thanks to my supervisor, Dr. Gail Fraser. Your kindness, guidance, and encouragement have been instrumental in my growth. Thank you for providing me with incredible opportunities to learn and work alongside you, offering thoughtful feedback, and always being willing to help. Your mentorship has truly made a difference in my academic journey. Finally, I want to express my appreciation for Jesse Hughes. Your participation in this research and your assistance with data analysis have been invaluable. Your positive energy made collaborating with you an absolute pleasure.

To each of you, thank you for your unwavering support and belief in me. This accomplishment would not have been possible without your encouragement, love, and guidance.

Table of Contents

Chapter One Introduction ***.....7***

References 10

Chapter Two Common Tern Nesting Productivity at Tommy Thompson Park ***.....12***

Abstract 12

Introduction 13

Results 22

Discussion 25

References 32

Chapter 3 Rethinking Sustainability: Reflecting on the Role of Environmental Management Systems and NGO Partnerships in Achieving Sustainable Business Practices ***.....39***

Abstract 39

Introduction 40

The Role and Challenges of EMS in Corporate Sustainability 43

The Role of NGO-Business Partnerships in Advancing Sustainability through EMS 47

Examining EMS Failures: A Case Study of Rio Tinto's Environmental Efforts 52

Examining EMS Success: A Case Study of Patagonia's Environmental Efforts 55

Conclusion 61

References 62

Chapter 4 Toronto Region Conservation Authority Business Pitch ***.....76***

Abstract 76

Introduction 77

Methodology 81

Results 83

Discussion 94

References 97

Chapter One

Introduction

This portfolio explores innovative approaches to addressing ecological challenges through a combination of conservation science, sustainability frameworks, and strategic partnerships. It emphasizes the value of collaboration in tackling these complex issues. The portfolio reflects a multidisciplinary examination of the connected themes of species protection, habitat restoration, and sustainable business practices. By combining field-based research, critical analysis of environmental management systems, and practical strategies for stakeholder engagement, it presents a broad examination of adaptive solutions to ecological and societal pressures. Each chapter contributes to a deeper understanding of the tools and methodologies critical to encouraging long-term environmental resilience and highlights the key role of collaboration across sectors in achieving meaningful progress.

Common terns breed in the Northern Hemisphere and are seen in Asia, Europe and North America in boreal and northern temperate zones (Wilson et al., 2001). Terns exist throughout Canada except for the Yukon and British Columbia (Nisbet, 2002) and are at risk in many areas where they breed (Morris et al., 2010). In Chapter Two of this portfolio, I present a study examining the nesting productivity of common terns (*Sterna hirundo*) on artificial nesting substrates at Tommy Thompson Park, Toronto. The study employed a robust methodology combining in-person visits and video surveillance to optimize data collection, ensuring high-quality imagery and extended camera functionality. The focus on common terns is particularly significant due to their concentration in the park's harbour area, which is uniquely situated near Toronto's urban core (Lakfard, 2010). This tern population accounts for a substantial portion of Lake Ontario's population and requires targeted conservation efforts to mitigate the impacts of urbanization and ecological pressures (Lakfard, 2010).

Over the years, the common tern population at Tommy Thompson Park has encountered substantial challenges, including habitat loss, increased human disturbance, and environmental changes that have diminished suitable nesting sites (Dunlop et al., 1991). Historically, the park provided abundant natural nesting opportunities for these colonial waterbirds; however, transformations in the ecosystem have severely limited available habitat, resulting in declines in breeding success (Tommy Thompson Park, 2016). Artificial nesting substrates were introduced

as a conservation strategy (Figure 1; Tommy Thompson Park, 2016). These engineered structures are designed to replicate natural nesting conditions while mitigating key threats such as flooding, predation, and interspecies competition (Blokpoel & Scharf, 1991; Dunlop et al., 1991; Lampman et al., 1996; Quinn & Sirdevan, 1998; Jenniges & Plettner 2008). The implementation of artificial nesting substrates represents a critical intervention aimed at enhancing the reproductive success and overall viability of the common tern population at the park (BirdLife International, 2024; Manikowska–Ślepowrońska et al., 2022). By providing secure and stable nesting sites, this conservation initiative seeks to counteract the adverse effects of habitat degradation and support the long-term sustainability of this species in the region (BirdLife International, 2024; Dunlop et al., 1991). This research underscores the importance of adaptive conservation strategies in addressing the complex ecological challenges faced by colonial waterbirds in urbanized environments. The study presented in this chapter is structured as a standalone scientific article, complete with figures and independently organized bibliographic references.



Figure 1. Images of artificial nesting rafts used by common terns at Tommy Thompson Park.

Chapter three examines Environmental Management Systems (EMS) as tools for advancing corporate sustainability, focusing on their implementation, effectiveness, and limitations. It explores the varied interpretations of conservation, drawing on perspectives that range from protecting natural habitats to sustaining urban ecosystems (Louafi et al., 2013; Scherr

& McNeely, 2008). EMS frameworks like ISO 14001 (Stapleton et al., 2001; Moldovan, 2015) are analyzed for their role in promoting resource efficiency and pollution control while addressing challenges associated with voluntary adoption and enforcement (Henriques & Sadorsky, 2004; Kollman & Prakash, 2002).

The chapter incorporates case studies of Rio Tinto and Patagonia to highlight contrasting approaches to sustainability. Rio Tinto's EMS and partnerships with NGOs are critiqued for insufficient environmental impact, while Patagonia demonstrates proactive integration of conservation into business practices (Rattalino, 2018; Bürklin, 2019). Additionally, the role of NGO-business partnerships is discussed, emphasizing their potential for enhancing conservation efforts despite operational and ethical challenges (Pezzoli, 1999; Lewis, 2010).

Key topics include the alignment of business strategies with conservation objectives, the role of collaborative partnerships, and the importance of regulatory frameworks in supporting sustainability initiatives.

Chapter Four of this portfolio presents three strategic business pitches tailored for the Toronto Region Conservation Authority. The proposal leverages advanced methodologies and proven tools to optimize the likelihood of securing funding from external organizations. This approach integrates best practices in resource development and donor engagement, aligning the Authority's objectives with the priorities of potential funders to maximize impact and support long-term sustainability.

References

BirdLife International. (2024). *Species factsheet: Common Tern (Sterna hirundo).* Retrieved November 22, 2024, from https://datazone.birdlife.org/species/factsheet/common-tern-sterna-hirundo

Blokpoel, H. A. N. S., & Scharf, W. C. (1991). Status and conservation of seabirds nesting in the Great Lakes of North America. *ICBP Tech. Publ*, *11*, 17-41.

Bürklin, N. (2019). Worn Wear: Better than New—How Patagonia's Social Marketing Campaign Enhances Consumers' Responsible Behavior. Social Marketing in Action: Cases from Around the World, 187-201.

Dunlop, C. L., Blokpoel, H., & Jarvie, S. (1991). Nesting rafts as a management tool for a declining common tern (Sterna hirundo) colony. Colonial Waterbirds, pp. 116–120.

Henriques, I., & Sadorsky, P. (2004). Environmental policy tools and firm level management practices in Canada. OCED. URL: www. oecd. org/env/consumption-innovation/31685571. pdf(дата обращения: 10.04. 2021).

Jenniges, J. J., & Plettner, R. G. (2008). Least Tern nesting at human created habitats in central Nebraska. *Waterbirds*, *31*(2), 274-282.

Lakfard, S. (2010, June). The Breeding Biology of Common Terns at Tommy Thompson Park, Ontario. In *Masters Abstracts International* (Vol. 49, No. 02).

Lampman, K. P., Taylor, M. E., & Blokpoel, H. (1996). Caspian terns (Sterna caspia) breed successfully on a nesting raft. *Colonial Waterbirds*, 135-138.

Lewis, D. (2010). Non-governmental organizations, definition and history. International encyclopedia of civil society, 41(6), 1056-1062.

Louafi, S., Bazile, D., & Noyer, J. L. (2013). Conserving and cultivating agricultural genetic diversity: transcending established divides. In Cultivating biodiversity to transform agriculture (pp. 181-220). Dordrecht: Springer Netherlands.

Kollman, K., & Prakash, A. (2002). EMS-based environmental regimes as club goods: Examining variations in firm-level adoption of ISO 14001 and EMAS in UK, US and Germany. Policy sciences, 35(1), 43-67.Manikowska–Ślepowrońska, B., Ślepowroński, K., & Jakubas, D. (2022). The use of artificial floating nest platforms as conservation measure for the common tern Sterna hirundo: a case study in the RAMSAR site Druzno Lake in Northern Poland. *The*

European Zoological Journal, *89*(1), 229-240.

Moldovan, D. S. (2015). Process approach of the quality-environment management system according to ISO 9001: 2015 and ISO 14001.

Pezzoli, K. (1999). Environmental management systems (EMSs) and regulatory innovation. Cal. WL Rev., 36, 335.

Quinn, J. S., & Sirdevan, J. (1998). Experimental measurement of nesting substrate preference in Caspian terns, Sterna caspia, and the successful colonisation of human constructed islands. *Biological Conservation*, *85*(1-2), 63-68.

Rattalino, F. (2018). Circular advantage anyone? Sustainability-driven innovation and circularity at Patagonia, Inc. Thunderbird International Business Review, 60(5), 747-755

Scherr, S. J., & McNeely, J. A. (2008). Biodiversity conservation and agricultural sustainability: towards a new paradigm of 'ecoagriculture'landscapes. Philosophical Transactions of the Royal Society B: Biological Sciences, 363(1491), 477-494.

Tommy Thompson Park. (2016). *Birds of Tommy Thompson Park – Tommy Thompson Park | Leslie Street Spit*. Tommythompsonpark.ca. https://tommythompsonpark.ca/park-species/birds/?

Chapter Two

Common Tern Nesting Productivity at Tommy Thompson Park

Abstract

This study examines the nesting productivity of common terns (*Sterna hirundo*) on artificial platforms at Tommy Thompson Park, Toronto, during the 2022 and 2023 breeding seasons. Using trail cameras and in-person observations, clutch size, hatching success, and estimated number of chicks fledged per platform were measured for each breeding season (one platform in 2022 and two platforms in 2023). The average clutch sizes was 2.8 in 2022 and 2.35 in 2023. Results revealed significant variability in hatching success, the highest in 2022 at 86.9% and the lowest on the Northern platform in 2023 at 2.5%, highlighting reproductive challenges driven by predation, particularly from great horned owls (*Bubo virginianus*) in 2023. Approximately 20 chicks fledged in 2022 and none in 2023. Despite artificial rafts eliminating ground predation, they remain vulnerable to avian predators, emphasizing the need for improved conservation strategies.

Keywords: common terns, nesting productivity, fledging, artificial nesting, predation

Introduction

Laridae populations are becoming increasingly impacted by human activities, such as habitat changes, water systems, and surrounding land use, which disrupt their ability to thrive and reproduce (Amano et al., 2018). Common terns (*Sterna hirundo*) in North America have experienced significant population fluctuations since the 19th century, with sharp declines observed during the 1800s when the Atlantic Coast population was nearly eradicated due to exploitation by the millinery trade (Arnold et al., 2020). Although population recovery was noted in the 1930s, widespread use of organochlorines, frequently used in agricultural work and other environmental contaminants, particularly in freshwater systems, suppressed population growth through the 1970s (Niemi et al., 1986; Arnold et al., 2020; Fox, 1976; Gilbertson et al., 1976; Courtney & Blokpoel, 1983; Cuthbert et al., 2003). While some populations, such as those in Atlantic Canada, have shown signs of stabilization, others remain at risk, notably in the Great Lakes region (Arnold et al., 2022). Earlier surveys conducted by Scharf et al. (1977) and Blokpoel (1977) emphasized the ecological significance of the lower Great Lakes basin and Tommy Thompson Park, which collectively supported approximately 40% of the common tern nesting population. Despite this, Great Lakes colonies face unique challenges. Research has highlighted the disadvantages of limited immigration into these colonies (Haymes & Blokpoel, 1978), compounded by their geographical isolation (Morris et al., 2012). These factors contribute to ongoing risks for common tern populations in this critical region.

Artificial nesting structures were implemented as a management strategy across North America and Europe to support the recovery of common tern populations. The first documented use of such a structure occurred in 1944 at Donnelly's Pier in Buffalo Harbour, where approximately 200 pairs of terns were observed (Jennings, 2012; Courtney & Blokpoel, 1983). Artificial substrates provide critical nesting opportunities when natural habitats are inaccessible or offer an alternative to reduce competition and predation pressures, particularly from ring-billed gulls (*Larus delawarensis*). In the lower Great Lakes region, 56.2% of tern colonies, or 50 out of 89, were located on artificial sites (Dunlop et al., 1991; Nisbet, 2002). Courtney & Blokpoel (1983) further reported that seven artificial nesting sites supported approximately 70% of the region's common tern population, highlighting the significant role these structures play in the species' overall reproductive success and population stability.

Understanding nesting productivity in common terns requires a systematic approach to measuring key reproductive metrics, such as clutch size, hatching success, and fledging success, particularly for populations using artificial platforms. Clutch size in terns nesting on platforms is determined by observing and recording the number of eggs in each nest. This process requires thorough monitoring during the early stages of the breeding season when eggs are first laid. Frequent surveys, conducted in person or using surveillance technology, allow researchers to document clutch sizes accurately. Individual nests on the platform are identified and labelled using a mapping system to track progress throughout the breeding season. Blokpoel and Scharf (1991) emphasize the importance of precise nest identification and marking within densely packed tern colonies to prevent miscounting or duplication of data. Nisbet (2002) further advocates monitoring at fixed intervals to ensure the maximum clutch size is captured before hatching. Both studies emphasize the necessity of repeated observations to differentiate between natural variations in clutch size and changes induced by environmental or anthropogenic factors. Typically, average clutch sizes for common tern range between two and three eggs per nest, with variability influenced by environmental conditions and the population's overall health (Winder et al., 2022). Systematic measurement of clutch size not only provides critical insights into the reproductive output of tern populations but also evaluates the effectiveness of artificial platforms as a conservation strategy to enhance breeding success (Manikowska–Ślepowrońska et al., 2022).

Hatching success is calculated as the proportion of nests that successfully produce at least one hatchling relative to the total number of monitored nests, expressed as a percentage (Mayfield, 1961). This metric highlights nest-level outcomes rather than the fate of individual eggs, making it particularly suitable for large-scale ecological studies where detailed monitoring of every egg may not be feasible (Mayfield, 1961). In avian ecology, especially in urbanized environments, hatching success is a vital indicator used to assess the effects of urbanization on reproductive performance and to develop adaptive strategies for enhancing species persistence in these challenging settings (Winder et al., 2022).

Various methodologies have been used to assess nesting productivity in terns, particularly those utilizing artificial platforms as nesting sites. For example, the Maryland Coastal Bays Program introduced a floating platform in 2022, which supported 155 common tern nests and

yielded at least 140 fledglings (Maryland Department of Natural Resources, 2022). Similarly, the Chichester Harbour Conservancy's "Return of the Tern" initiative documented 42 pairs of common terns nesting on rafts in 2022, resulting in 54 fledglings (Chichester Harbour Conservancy, 2024).

Given the inherent challenges in tracking individual chicks, studies typically measure fledging success at the platform or colony level rather than by individual nests. The use of artificial platforms requires specific methods for determining nesting productivity. Fledging metrics are calculated by platform, not nest, because tern chicks often display significant movement across these structures in response to environmental conditions, making it impractical to measure fledglings to specific nests without continuous observation or marking (Valero & Palestis, 2019). Furthermore, the dense colonial nesting behaviour of common terns adds to this complexity, as nests are situated close to one another, and chicks frequently intermingle as they grow, further complicating the ability to track fledglings to their nests (Valero & Palestis, 2019). These findings emphasize the importance of colony-level assessments for accurately monitoring productivity in artificial nesting environments.

Camera monitoring has emerged as a crucial tool for studying nest metrics and predator interactions, offering several advantages over traditional field methods (Krüger et al., 2018; Southwell & Emmerson, 2015; Brandis et al., 2014). This approach enables researchers to collect continuous, high-resolution data while minimizing disturbances to bird populations, making it particularly effective for sensitive species (Nisbet, 2002; Blokpoel & Scharf, 1991). Manikowska–Ślepowrońska et al. (2022) have shown that cameras have proven invaluable in documenting critical nesting parameters, such as clutch size, parental behaviour, and fledging success, specifically demonstrating their effectiveness in monitoring artificial nesting platforms, such as those used by common terns.

However, the use of cameras is not without challenges and potential biases. For instance, Ball et al. (2012) reported that while observers analyzing camera footage accurately identified nest fate 85% of the time, they overestimated nest productivity by up to 35%, leading to an overestimation of population growth rates by 6%. Despite these limitations, the advantages of camera monitoring far outweigh the possible drawbacks. Cameras have become essential in

avian ecology by minimizing human disturbance and encouraging detailed, long-term observations of nesting dynamics and metrics.

Terns do not require highly specialized habitats, but suitable nesting sites must provide adequate prey resources (they forage primarily on small fish, including alewife (*Alosa pseudoharengus*) and smelt (*Osmerus mordax*) in Lake Ontario) and appropriate substrates for nesting (Jennings, 2012). According to Nisbet (2002), optimal habitats are often found in the early stages of vegetation succession, featuring good drainage and open areas. These conditions help terns detect predators more easily while allowing chicks to conceal themselves within the environment (Nisbet, 2002). Artificial substrate sites, which include small shelters mimicking early successional plants and flat, well-drained surfaces, serve as valuable nesting grounds (Nisbet, 2002; Jennings, 2012). Their importance has grown as urbanization reduces natural habitat availability and increases gull populations, which compete for nesting space with terns (Nisbet, 2002; Jennings, 2012). Adopting artificial substrates addresses these challenges and plays a vital role in advancing local and broader conservation efforts (Jennings, 2012).

Common tern management programs need to examine individual colonies and track nest productivity (Courtney & Blokpoel, 1983; Morris et al., 1992). Morris et al. (1992) compared two Ontario colonies (Eastern Headland and Port Colborne Breakwater) with equivalent characteristics (e.g., colony size and degree of urbanization) but reacting differently to similar management strategies, resulting in opposing trends in breeding pair populations for each site over time (Port Colborne Breakwater increased, Eastern Headland decreased; Morris et al., 1992). While Port Colborne experienced significant increases in its breeding population, the Eastern Headland colony sharply declined between 1983 and 1989, nearing local extinction despite management interventions (Morris et al., 1992). This decline can be attributed to challenges such as increased accessibility to mammalian predators and vegetation growth that degraded nesting habitat (Morris et al., 1992). Additionally, the site's proximity to Canada's largest urban center further exacerbates these issues, with disturbances from people and their dogs (Morris et al., 1992).

Previous research indicates that common terns residing in more naturalized sites are highly affected by disturbance. However, Jennings (2012) found that terns nesting at Imperial

Dock Lock SPA in Leith, Scotland, using artificial substrates, were well-habituated to routine human activity but experienced increased sensitivity to nearby industrial activity. The disturbance caused by a pipe-loading vessel ultimately led to the terns delaying their nesting seasoning (Jennings, 2012). A delay in nesting is problematic for less experienced breeding pairs that cannot offset the disadvantages compared to experienced pairs (Arnold et al., 2004). Along the South coast of Norway, a similar event occurred where pleasure craft vehicles reduced the number of tern nests the colony (Barrett & Vader, 1984).

The synchronization of egg-laying and chick-hatching in common terns provides a strategy against predators (Becker, 1995). Nesting on artificial substrates creates trade offs for common terns, such as the advantages of communal nesting for enhanced predator deterrence against the challenges of heightened intraspecific aggression and resource competition. The costs and benefits of communal nesting in Common Terns (*Sterna hirundo*) are intricately linked to colony size, with notable trade offs for small and large colonies. Communal mobbing, a critical anti-predator strategy among colonial nesting species, becomes increasingly effective as the number of participating individuals rises (Hernández-Matías et al., 2003). However, this effectiveness eventually levels off, and adding more individuals has little impact. Larger colonies enhance synchronized mobbing behaviours, significantly improving predator deterrence and reducing predation risk compared to smaller colonies (Minias et al., 2020). Minias et al. (2020) found that communal defence initiation rates in large colonies are significantly higher, whereas smaller colonies depend more on individual defence, which is less effective at deterring predators. This pattern suggests that larger colonies benefit from a dilution effect, as predators face greater challenges targeting specific nests within a densely populated group (Burger & Gochfeld, 1991; Arroyo et al., 2001).

Despite the advantages of large colonies, they usually experience higher rates of intraspecific aggression as adults compete for optimal nesting sites and access to limited resources (Becker, 1995). This heightened aggression can increase chick mortality, particularly due to attacks on non-offspring chicks by neighbouring adults (Szostek et al., 2014; Antolos et al., 2006). Becker (1995) demonstrated that moderate colony densities provide an optimal balance, supporting effective predator defence while minimizing conspecific aggression. In excessively dense colonies, the benefits of communal mobbing plateau, and the costs associated

with aggressive interactions rise, ultimately reducing overall reproductive success (Burger & Gochfeld, 1991).

Smaller colonies face higher predation risks because fewer individuals are available for synchronized mobbing, making communal defence less effective and making synchronized dense ineffective below a critical group size (Arroyo et al., 2001; Minias et al., 2020). Additionally, individual defence initiation rates are higher in smaller colonies, creating greater energetic costs for terns and reducing the overall efficiency of predator deterrence compared to synchronized mobbings in larger groups (Minias et al., 2020). Furthermore, smaller colonies often exhibit reduced reproductive synchrony, a key benefit of colonial nesting that helps overwhelm predators and decreases predation risk for individual nests (Lack, 1968; Hatchwell, 1991).

Common terns first initiated Tommy Thompson Park as early as 1971 (Blokpoel et al. 1978). As of 2000, several elements have been identified that influence abundance and distribution, including depredations by an avian and mammalian predator, gull control, etc.; nevertheless, these factors influence either alone or in conjunction with one another are not well understood (Wilson et al., 2001). Terns migrate to the lower Great Lake region for their breeding season in early to mid-April (Goodwin, 1995). Typically, individuals under three years of age remain in their wintering grounds or along their migration route, with very few migrating to their breeding grounds (Morris & Hunter, 1976). Terns are colonial nesters, with an average nest having three eggs and an incubation period of roughly 22 to 23 days (Peck & James, 1983). Document avian and mammalian predators include ruddy turnstones (*Arenaria interpres*), black-crowned night-herons (*Nycticorax nycticorax*), coyotes (*Canis latrans*), raccoons (*Procyon lotor*), red foxes (*Vulpes vulpes*), and feral dogs (*Canis lupus familiaris*) and cats (*Felis catus*) (Farraway et al., 1986; Wilson et al., 2001)

In this study, I examined the nesting productivity of common terns using artificial nesting substrates at Tommy Thompson Park, Toronto, during the 2022 and 2023 breeding seasons using two different methods, in person observations and camera traps. Key metrics included the number of active nests, clutch size per nest, hatchling success rates per nest, and fledgling outputs. Additionally, predator presence was monitored in and around nesting areas, and

behavioural responses of the terns to potential predation threats were notably observed. This research aims to contribute to understanding the effectiveness of artificial nesting substrates in supporting common tern reproduction while providing insights into predator interactions within these nesting habitats.

Study Site

Tommy Thompson Park is 43.633oN/ 79.329oW on the Leslie Street Spit, as shown in Figure 1 (Dupuis-Désormeaux et al., 2017). The area is a manmade peninsula extending roughly five kilometres long into Lake Ontario (Dupuis-Désormeaux et al., 2017). In 1959, the original plan was to construct new lands for port-related activities (Dupuis-Désormeaux et al., 2017). However, the project fell through, and the site was awarded the Toronto and Region Conservation Authority (TCRA) from the Province of Ontario (Dupuis-Désormeaux et al., 2017). With the establishment of tern and gull nests in the 1970s, the area was allocated as an Environmental Significant Area. BirdLife International named Tommy Thompson Park an Important Bird Area due to its significant population of nesting colonial waterbirds, including double-crested cormorant (*Phalacrocorax auritus*), black-crowned night heron, great egret (*Ardea alba*), common tern, herring gull and ring-billed gull (Johnston & Sturdee, 2016).

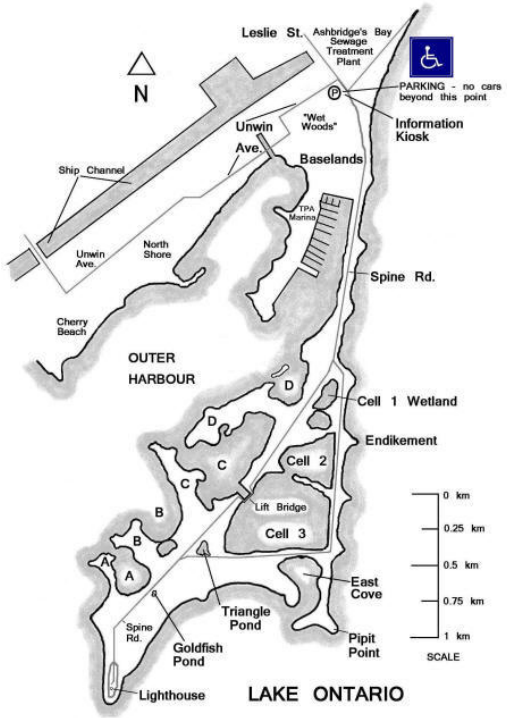


Figure 1. Map of Tommy Thompson Park (Original by Friends of the Spit, 2019).

Common terns nest on artificial substrates at Tommy Thompson Park, including three floating artificial nesting rafts (Wilson et al., 2001). The rafts – in which the design has been modified over the years - are covered with gravel, sand driftwood, chick shelters, and ramps, which were later removed (Wilson et al., 2001; Figure 2). The rafts are approximately 24 m^2 (Johnston & Sturdee, 2016). During this study, two rafts were in Embayment D and one raft was in Cell 3 (Johnston & Sturdee, 2016; see Figure 1).



Figure 2. Image of current artificial nests in the 2023 breeding season.

Methodology

I used ground-based and video surveillance techniques to monitor tern platforms. In 2022, one tern platform (Embayment D, South platform) was followed using one camera (Spypoint). The camera was installed on 13 May 2022. In 2023, two cameras (Spypoint and Browning) were installed on posts on two rafts (4 cameras total; the South and North platforms, Embayment D; Figures 1, 2). Each raft had a camera one to provide an aerial perspective and the other at a lower angle (Figure 3) to maximize spatial coverage. The cameras were programmed to take one photo per 1-hour. The Spypoint camera was cellular and images were immediately available. For the remaining cameras images were retrieved when nesting was completed (September 2022, 2023). In 2023, in addition to the cameras, two visits via canoe, to the platforms were conducted on June 8th and 28th, and photos were taken of the nests (Figure 4).



Figure 3. Image from Camera 2 shows a lower angle of the North Platform



Figure 4. Image taken from iPhone 12 during an in-person visit to the platform.

Collecting data from images

The following protocol was developed to collect data off the images. Nests in the images were numbered to allow tracking of individual nests. A single image per day per raft was used to collect nesting data. From each image the following information was collected: 1) date; 2) the number of eggs in each nest if visible; 3) the number of nests that hatched chicks; 4) the number of chicks; and 5) the number of fledglings. From this, I calculated average (±SD) clutch size and number of chicks per platform per year; hatching success (number of nests that hatched chicks out of total number of nests followed) per platform per year, and an estimate of the number of fledglings produced based on the peak number of fledglings observed overtime per platform per year. Because tern chicks are precocial, they move around, thus the final metric, number of

fledglings was presented as the peak number of fledglings observed in an image (not per platform since not all nests were monitored). In cases where one camera was non-operational or misaligned, counts were based on the best available image from the functional camera.

Additionally, all photographs were analyzed for notable observations, including non-target species, predators, or other ecological interactions. When species could not be reliably identified, a higher taxonomic classification, such as genus or family, was employed to ensure accurate documentation.

Results

Table 1 summarizes the breeding success across years and platforms. The 2022 southern platform season was highly successful, achieving a hatching success of 86.9% (95% CI [83.8557, 89.9443]) and producing 20 fledglings. In sharp contrast, hatching success in 2023 dropped dramatically to 28.3% (95% CI [26.9584, 29.6416]) on the southern platform and just 2.50% (95% CI [1.7101, 3.2899]) on the northern platform, with no fledglings observed on either. The complete nesting failure in 2023 was primarily attributed to predation by great horned owls frequently visiting both platforms causing nightly desertion of the nesting adults.

During the 2022 breeding season, no great horned owl activity was detected through trail camera monitoring. During the 2023 breeding season, in contrast, 48 great horned owl visits were observed on the South Platform, while the North Platform recorded only four observations, as shown in Figure 5. The notable difference in observation frequency is primarily attributed to camera limitations at the North Platform, where trail cameras were removed prematurely, and frequent adjustments to camera angles restricted their ability to capture the full platform consistently. These factors likely contributed to an underrepresentation of owl activity at the North Platform. In 2022, 20 fledglings were successfully observed on the nesting platform. In contrast, no fledglings were recorded on either the South or North platforms during the 2023 breeding season, indicating a complete reproductive failure for that year. This evident year-to-year variability highlights the potential influence of ecological pressures, with frequent predation by great horned owls likely playing a significant part in the observed reproductive outcomes.

The 2023 breeding season on the North Platform was characterized by significant camera functionality and stability challenges, leading to substantial data collection gaps. The aerial perspective camera was shifted multiple times throughout the season, initially on May 17, followed by subsequent shifts on May 26, May 30, and June 5. These repeated adjustments impacted the camera's ability to maintain consistent platform coverage. The lower-angle camera faced even greater disruptions; it was knocked down on May 19 and remained out of position until it was restored to its post on June 7. However, it provided visual coverage of only one nest during this period. On June 8, the lower-angle camera was knocked down again at night, and no images captured any active nests on the platform after that. Following June 9, only one camera remained operational, and data collection ceased entirely after June 23, as no further images were recorded. These repeated disruptions severely limited the ability to collect comprehensive data on the North Platform during the 2023 season.

Camera functionality on the South Platform during the 2023 season was relatively more stable than the North Platform; however, several incidents still affected the quality and consistency of data collection. The aerial perspective camera moved for the first time on May 17, but the view remained largely unobstructed. Subsequent movements occurred on June 21, June 22, and June 26, each decreasing the observation range and limiting the camera's ability to monitor nests effectively. Similarly, the lower-angle camera experienced several positional changes, beginning on June 13. Although the initial shifts did not significantly obstruct the view, additional movements on June 16, June 17, June 20, and June 21 further reduced the camera's coverage and reliability. While not as severe as those on the North Platform, these disruptions still posed challenges to collecting consistent and high-quality data for the South Platform in 2023.

In contrast to the 2023 season, the South Platform's cameras performed consistently and reliably during the 2022 breeding season. The camera remained fixed and fully operational between May 13 and September 1, providing uninterrupted platform coverage. This stability allowed for comprehensive data collection throughout the breeding season, offering a clear and continuous record of nesting activity on the platform.

Table 1. Summary of breeding success for common terns at Tommy Thompson Park for 2022 and 2023 breeding seasons.

	Average(±SD) number of eggs laid per nest (clutch size; 95% CI)	**Hatching success (number of nests that hatched chicks out of total number of nests) (95% CI)**	**Average (±SD) number of chicks observed around hatching (95% CI)**	**Maximum number of fledglings observed in an image**
2022 – S. platform	2.8 ± 0.4 (SD), n = 22 nests, [2.6226, 2.9774]	86.9% (n = 23 nests), [83.8557, 89.9443]	1.7 ± 0.9 (SD), (n = 23 nests), [1.3108, 2.0892]	20
2023 – S. platform	2.7, ± 0.7 (SD), n = 67 nests, [2.5293, 2.8707]	28.3% (n = 67 nests), [26.9584, 29.6416]	0.4 ± 0.8 (SD), (n = 67 nests), [0.2049, 0.5951	0
2023 – N. Platform	2.0, ± 0.9 (SD), n = 40, [1.7122, 2.2878]	2.5% (n = 40 nests), [1.7101, 3.2899]	0.03 ± 0.2 (SD), (n = 40), [-0.0340, 0.0940]	0

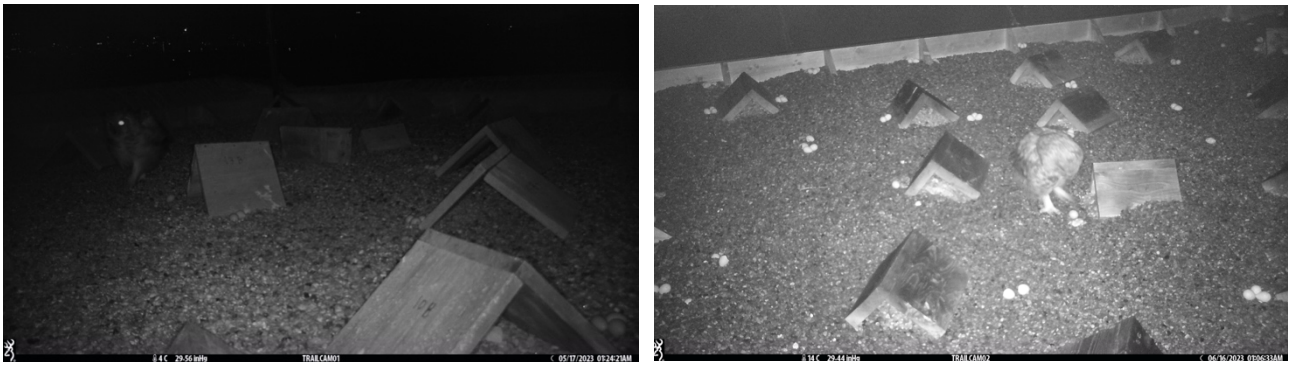


Figure 5. Great horned owl captured on video surveillance in 2023. No adult common terns present.

Discussion

The common terns nesting at Tommy Thompson Park represent an important proportion of terns for Lake Ontario (Morris et al. 2010). In this study, there were marked contrasts in nest productivity for the two study years. A previous study of terns at Tommy Thompson park identified habitat loss and disturbances negatively impacting the quality of common tern nesting sites (Dunlop et al., 1991). Dunlop et al. (1991) highlighted the benefits of utilizing artificial nesting rafts as a strategy to mitigate the effects of habitat loss and interspecies competition, particularly with gulls. However, in 2023 a single great-horned owl caused nocturnal desertions of nesting terns and ultimately causing complete nest failure.

Great horned owls exhibit broad dietary flexibility, making them generalist predators with a diverse prey base (Cromrich et al., 2002). They primarily target small mammals, including rodents, lagomorphs, and marsupials, as observed in great horned and magellanic owls (*Bubo magellanicus)* (Tomazzoni et al., 2004). Opportunistic foraging behaviours, such as predation on locally abundant Little Brown Bats (*Myotis lucifugus*), have also been documented, likely facilitated by human-altered environments (Jung et al., 2011). Predation by great horned owls has notable indirect impacts on other species, including common terns. Nisbet and Welton (1984) identified significant predation pressure on tern eggs and chicks, while Morris and Wiggins (1986) described behavioural shifts within tern colonies, such as increased "dreads" (mass flights of tern in the colony), which they attributed to predation stress. Evidence of dismembered adult terns further implicates great horned owls as key predators in these colonies (Morris & Wiggins, 1986). These findings highlight the ecological significance of great horned owls as both direct predators and drivers of behavioural changes in prey species.

Owl predation on colonially nesting seabirds is well-documented (Brewster, 1879; Bent, 1938; Austin, 1948; Vermeer, 1970; Nisbet, 1975; Southern et al., 1982; Nisbet & Welton, 1984). Predation by great horned owls has significant implications for common tern colonies, causing both direct and indirect mortality of adults and juveniles (Nisbet, 1975; Nisbet & Welton, 1984). This predation pressure also leads to nocturnal nest desertion, which prolongs incubation periods, increases egg predation risk, and ultimately reduces hatching and fledging success. If poor reproductive outcomes persist over multiple breeding seasons, complete colony

abandonment may occur (Marshall, 1942; Nisbet, 1975; Nisbet & Cohen, 1975; Morris & Hunter, 1976; Nisbet & Welton, 1984).

Seabirds, such as common terns, breed in large colonies that benefit from collective predator detection and defence mechanisms during daylight hours, which help mitigate predation risks (Kruuk, 1964; Burger & Gochfeld, 1988; Becker, 1995). However, these defences are notably absent at night, leaving seabirds vulnerable to nocturnal predators (Southern et al., 1982; Shealer & Kress, 1991). Many seabirds exhibit a flight response in response to nocturnal threats, abandoning the colony and leaving chicks and eggs unprotected (Hunter & Morris, 1976; Nisbet & Welton, 1984; Holt, 1994). Adult common terns are reported to respond to nocturnal predation events by temporarily abandoning their colonies and remaining away from the site until dawn (Arnold et al., 2006). However, direct observations of this behaviour remain scarce due to the challenges of monitoring individual terns under low-light conditions (Arnold et al., 2006). The inherent difficulty of studying nocturnal behaviours and the heightened sensitivity of terns to disturbance during nighttime hours limit comprehensive documentation and understanding of this response (Arnold et al., 2006). However, Arnold et al. (2006) found desertion events were most observed when physical evidence confirmed the presence of an owl within the colony or following nights of owl predation. This pattern suggests that desertion behaviour is driven not only by the immediate threat of predation but also by the perceived risk, highlighting a predator-induced response to mitigate potential harm.

As a result of nocturnal desertion, nests become vulnerable to significant predation pressure from nocturnal predators, including mammals (Southern et al., 1980; Kepler, 1967) and avian species (Holt, 1994; Nocera & Kress, 1996). Such predation can lead to substantial losses in chicks and eggs, prolonged incubation periods, and lower hatching success rates (Nisbet, 1975; Emlen et al., 1966; Sudmann et al., n.d.). Serré et al. (2023) examined nighttime nest attentiveness in herring gulls in Pukaskwa National Park, focusing on the impact of the great horned owl predation. In 2017, the study observed reduced nighttime attentiveness at one of two sites where owl predation occurred, while daytime attentiveness remained consistent between the sites (Serré et al., 2023). Similarly, in 2018, the same owl-affected site experienced reduced nighttime attentiveness (Serré et al., 2023). However, nighttime nest attentiveness in 2018 was significantly diminished, with prolonged gull absences closely associated with the presence of

owls (Serré et al., 2023). These challenges presented by predation emphasize the crucial need to understand nocturnal predation dynamics and their implications for common tern reproductive success and population sustainability.

Nisbet & Welton (1984) identified six egg and chick loss cases, noting that loss was most frequent early in the breeding season. Cold nights were a highlighted factor that affected newly hatched chicks Nisbet & Welton (1984). Additionally, ant predation and egg disappearance were most prevalent in the earliest subperiods, likely due to environmental conditions and behavioural patterns (Nisbet & Welton., 1984). Great horned owls primarily preyed on smaller, early-season chicks, reflecting prey scarcity, whereas predation by black-crowned night herons was curtailed by mid-season management efforts (Nisbet & Welton, 1984). Hatching failures in their study showed no seasonal trend. These patterns highlight the temporal variability of environmental and predatory pressures on reproductive success (Nisbet & Welton, 1984). Predation and chick loss are heavily influenced by the opportunistic foraging strategies of avian predators, which can undermine the effectiveness of predator avoidance behaviours (Lima, 2009). Spatial and temporal patterns of egg and chick losses indicate that these predators adapt their strategies to exploit vulnerabilities, ultimately diminishing the protective advantages of such behaviours (Lima, 2009). These findings underscore the adaptive flexibility of avian predators in exploiting available resources, regardless of attempts to mitigate predation risk (Barbour et al., 2000).

Shealer & Kress's (1991) study on terns located on Stratton Island revealed that terns exhibit a distinct behavioural response to predation risk, with individuals actively mobbing night herons during daylight hours but abandoning their nests at night. This behaviour suggests that visibility is critical in a tern's decision to defend or leave its nest (Shealer & Kress, 1991). The tendency for nocturnal abandonment may be an adaptive response to predation pressure from nocturnal predators, such as great horned owls, which pose a significant threat to incubating adults (Shealer & Kress, 1991). Shealer & Kress's (1991) findings highlight the complex relationship between predator activity and avian anti-predator strategies, emphasizing the role of environmental context in shaping nesting behaviour.

Although colonial nesting is often associated with anti-predator advantages, such as group vigilance (Kopachena, 1991), certain species may lack sufficient nocturnal defence

strategies. Southern and Southern (1979) suggested that Larus gulls exhibit limited nocturnal defences, a vulnerability that may also extend to terns. These findings highlight the complex dynamics of predator-prey interactions within colonial seabird species and underscore the significant impact of nocturnal predation on reproductive success and colony stability.

Common terns have undergone significant changes in population dynamics and nesting habitats across the Great Lakes and other regions of Canada. Between 1976 and 1999, historical censuses reported declines in nests (-19.1%) and colonies (-14.9%) in the Great Lakes region (Morris et al., 2010). These declines were heavily observed in Canadian waters, where nest numbers decreased by 33.1% and colony numbers by 37.3% (Morris et al., 2010). Subsequent data from 1999 to 2010 aimed to determine whether these declining trends were consistent in other regions of Canada (Morris et al., 2010). Despite overall declines, localized trends varied significantly. For instance, in the St. Lawrence/Lake Ontario system, the total number of Common Tern nests increased by 22.6% between the first and third census periods (Morris et al., 2010). Increases drove this growth at U.S. sites, where nest numbers rose from 131 to 674. However, these gains were offset by declines at Canadian sites, where nest numbers decreased from 1487 to 1310 (Morris et al., 2010).

Many Common Tern colonies in Canada and the United States were found nesting on artificial substrates, such as breakwaters, navigation cells, industrial sites, and dredge material islands (Morris et al., 2010). Approximately 50% of Canadian colonies and 57.6% of U.S. colonies utilized these artificial structures (Morris et al., 2010). The largest colonies on both sides of the border were also located on artificial substrates, with key Canadian sites including Tommy Thompson Park and Windermere Basin, while major U.S. sites included Nav. Cell 58 and Cat Island Steering Light (Morris et al., 2010).

If predation can be mitigated, nesting rafts have demonstrated significant potential for enhancing Common Tern reproductive success, but predation and post-hatching survival challenges remain. Dunlop et al. (1991) examined hatching outcomes at Tommy Thompson Park in 1990, reporting an 82% hatching success rate, with 296 of 361 eggs successfully hatching. However, post-hatching survival was problematic, as 43% of the chicks (126 individuals) either died or went missing before reaching 20 days of age. Of these, 61 chicks were confirmed dead

on the rafts, while the fate of 65 could not be determined. Despite these setbacks, the rafts produced 170 fledglings, underscoring their contribution to tern productivity (Dunlop et al., 1991). Similarly, the 2022 breeding season recorded a nesting success rate of 86.9% (95% CI [83.8557, 89.9443]) but faced comparable issues with chick fate. Like the findings from 1990 (Dunlop et al. 1991), some chicks were found dead on the platform, while others went missing, likely due to predation or to conspecific attacks (Arnold et al., 2020) . These parallels between the two studies highlight a consistent challenge in determining chick outcomes and emphasize the importance of addressing post-hatching mortality to improve the effectiveness of nesting platforms

Cameras play a valuable role in wildlife monitoring, offering unique advantages; however, their limitations must be carefully addressed to ensure accurate and thorough data collection. One key drawback is their restricted field of view. As stationary devices, cameras capture only the activity within their fixed frame, potentially missing significant ecological interactions or movements outside their range (Kemp et al., 2022). This limitation is further exacerbated when cameras shift unexpectedly, as experienced in this study. Additionally, Call et al. (2023) highlights how cameras may fail to document critical aspects of wildlife behaviour, such as the causes of chick mortality. These challenges stress using cameras as a complementary tool rather than a standalone method in wildlife monitoring.

Another challenge is the potential behavioural response of wildlife to camera equipment. While some species, such as common terns, may habituate to the presence of cameras and exhibit no significant behavioural changes (Prosser et al., 2020), others may avoid monitored areas or alter their nesting patterns due to the conspicuousness of the equipment (Herranz et al., 2002; Richardson et al., 2009). Although there is no definitive evidence that great horned owls are attracted to or deterred by cameras, observations from various live camera projects, such as those by the Owl Research Institute and the Cornell Lab of Ornithology, suggest that they are generally indifferent to such equipment (All About Birds, 2011; Owl Research Institute, 2011).

While cameras are valuable for monitoring wildlife and providing insights that other methods might miss, their limitations must be addressed. Integrating camera monitoring with in-

person surveys can help overcome these challenges and provide a more comprehensive understanding of wildlife dynamics.

Conclusions

This study highlights the significant challenges common terns face in urban conservation settings, with findings indicating critical reproductive challenges at Tommy Thompson Park during the 2022 and 2023 breeding seasons. While artificial nesting rafts have proven effective in mitigating some threats, their vulnerability to avian predation, particularly from great horned owls, highlights the complexness of predator-prey interactions and the need for enhanced management strategies. The observed low hatching success, coupled with year-to-year variability in fledging outcomes, raises urgent concerns about the sustainability of this population. These findings emphasize the importance of understanding the ecological dynamics influencing tern productivity, mainly nocturnal predation and its subsequent effects on reproductive success. Addressing these problems should include long-term, multidisciplinary research to identify effective conservation strategies, especially for Tommy Thompson Park and its unique pressures from urban environments.

Future research should concentrate on the behavioural ecology of predators and prey, exploring whether predation patterns are opportunistic or influenced by resource limitations/accessibility. Additionally, alternative artificial nesting designs should be further analyzed, examining each's effectiveness and ability to reduce predation risk, which is critical following the 2023 breeding season. More enhanced monitoring methods, including fixed camera installations and increased in-person observations, are recommended for future observation collection to improve data reliability and capture a more comprehensive understanding of nesting dynamics.

As urbanization reshapes habitats, developing adaptive conservation measures is essential to ensure the long-term sustainability of common tern populations and broader biodiversity. Tommy Thompson Park, offering a unique opportunity and environment within a densely populated urban region, allows us to explore these dynamics and advance our understanding of the interplay between urban pressures and ecological resilience. This knowledge is vital for informing conservation efforts that balance urban development with preserving avian species and their habitats.

Acknowledgements

I extend my sincere gratitude to the Toronto Region Conservation Authority for the opportunity to contribute to this research and for their invaluable support throughout the study.

References

All About Birds. (2011). Can We Save the Spoon-billed Sandpiper? *All about Birds*. https://doi.org/106885985/AAB2Slot1

Amano, T., Székely, T., Sandel, B., Nagy, S., Mundkur, T., Langendoen, T., ... & Sutherland, W. J. (2018). Successful conservation of global waterbird populations depends on effective governance. Nature, 553(7687), 199-202.

Arnold, J. M., Hatch, J. J., & Nisbet, I. C. (2004). Seasonal declines in reproductive success of the common tern Sterna hirundo: timing or parental quality?. *Journal of Avian Biology*, *35*(1), 33-45.

Arnold, J., Oswald, S. Nisbet, I., Pyle, P., & Patten, M., A. (2020). Common Tern Sterna hirundo, version 1.0. In S. M. Billerman, editor. Birds of the World. Cornell Lab of Ornithology, Ithaca, New York, USA. https://doi.org/10.2173/bow.comter.01

Arnold, J., Oswald, S., Wilson, S., & Szczys, P. (2022). Understanding widespread declines for Common Terns across inland North America: productivity estimates, causes of reproductive failure, and movement of Common Terns breeding in the large lakes of Manitoba. Avian Conservation and Ecology, 17(1).

Arnold, J. M., Sabom, D., Nisbet, I. C., & Hatch, J. J. (2006). Use of temperature sensors to monitor patterns of nocturnal desertion by incubating Common Terns. Journal of Field Ornithology, 77(4), 384-391.

Arroyo, B., Mougeot, F., & Bretagnolle, V. (2001). Colonial breeding and nest defence in Montagu's harrier (Circus pygargus). *Behavioral Ecology and Sociobiology*, *50*, 109-115.

Austin, O. L. (1948). Predation by the common rat (Rattus norvegicus) in the Cape Cod colonies of nesting terns. Bird-banding, 60-65.

Ball, J. R., & Bayne, E. M. (2012). Using video monitoring to assess the accuracy of nest fate and nest productivity estimates by field observation. *The Auk*, *129*(3), 438-448.

Barbour, D. L., Morris, R. D., & Moore, D. J. (2000). Egg and chick fates of Common Terns in areas of high and low nest density. Journal of Field Ornithology, 71(1), 34-45.

Barrett, R.T. & Vader, W. 1984. The status and conservation of breeding seabirds in Norway. ICBP Technical Publication 2: 323–333.

Becker, P. H. (1995). Effects of coloniality on gull predation on Common Tern (Sterna hirundo) chicks. Colonial Waterbirds, 11-22.

Bent, A. C. (1938). Life histories of North American birds of prey. Part 2, United States National Museum, Bulletin Number 170, Smithsonian Institute. Washington, D.C

Bird Survey Guidelines. (n.d.). *Survey methodology | Bird Survey Guidelines*. Bird Survey Guidelines. https://birdsurveyguidelines.org/methods/survey-method/

Blokpoel, H. (1977). Gulls and terns nesting in northern Lake Ontario and the upper St. Lawrence River. Fisheries & Environment Canada, Canadian Wildlife Service.

Blokpoel, H., & Scharf, W. C. (1991). Status and conservation of seabirds nesting in the Great Lakes of North America. In J. P. Croxall (Ed.), *Seabird Status and Conservation: A Supplement* (pp. 17-41). International Council for Bird Preservation.

Brandis, K. J., Koeltzow, N., Ryall, S., & Ramp, D. (2014). Assessing the use of camera traps to measure reproductive success in Straw-necked Ibis breeding colonies. *Australian Field Ornithology*, *31*(2), 99-106.

Brewster, W. (1879). The terns of the New England coast. Bulletin of the Nuttall Ornithological Club, 4(1), 13-22.

Burger, J., & Gochfeld, M. (1988). Defensive aggression in terns: effect of species, density, and isolation. Aggressive Behavior, 14(3), 169-178.

Burger, J., & Gochfeld, M. (1991). Human distance and birds: tolerance and response distances of resident and migrant species in India. *Environmental Conservation*, *18*(2), 158-165.

Call, M. N., Wilke, A. L., Poulton, Z., Boettcher, R., Karpanty, S. M., Kwon, E., ... & Wails, C. N. (2023). Comparing in-person versus camera monitoring of shorebird reproductive success. *Waterbirds*, *45*(3), 312-327.

Chichester Harbour Conservancy. (2024, May 13). *return of the tern*. Chichester Harbour Conservancy. https://www.conservancy.co.uk/nature-recovery/projects/return-of-the-tern/

Courtney, P. A., & Blokpoel, H. (1983). Distribution and numbers of Common Terns on the Lower Great Lakes during 1900-1980: a review. Colonial Waterbirds, pp. 107–120.

Cromrich, L. A., Holt, D. W., & Leasure, S. M. (2002). Trophic niche of North American great horned owls. Journal of Raptor Research, 36(1), 10.

Cuthbert, F. J., Wires, L. R., & Timmerman, K. (2003). Status assessment and conservation recommendations for the Common Tern (Sterna hirundo) in the Great Lakes Region. US Department of the Interior, Fish and Wildlife Service, Ft. Snelling, MN, USA.

Dunlop, C. L., Blokpoel, H., & Jarvie, S. (1991). Nesting rafts as a management tool for a

declining common tern (Sterna hirundo) colony. Colonial Waterbirds, pp. 116–120.

Dupuis-Désormeaux, M., Sturdee, I., Johnston, D., & Xamin, P. (2017). First record of Least Bittern nesting at Tommy Thompson Park in Toronto, Ontario.

Emlen, J. T., Miller, D. E., Evans, R. M., & Thompson, D. H. (1966). Predator-induced parental neglect in a Ring-billed Gull colony. The Auk, 83(4), 677-679.

Farraway, A., Thomas, K., & Blokpoel, H. (1986). Common tern egg predation by ruddy turnstones. The Condor, 88(4), 521–522.

Freeman, R. E. (2010). Strategic management: A stakeholder approach. Cambridge university press.

Ford., J. (2018, June 8). Destruction and Relocation of Migratory Bird Nest Contents [Memoradum]. United States Deparement of the Interior. https://www.fws.gov/sites/default/files/documents/Nest%20Memo_6.12.18_final.pdf

Fox, G. A. (1976). Eggshell quality: its ecological and physiological significance in a DDE-contaminated Common Tern population. The Wilson Bulletin, pp. 459–477.

Friends of the Spit. (2019, July 3). How to get to the Spit» Friends of the Spit. Friends of the Spit. https://friendsofthespit.ca/about-the-spit/how-to-get-to-the-spit/

Gilbertson, M., Morris, R. D., & Hunter, R. A. (1976). Abnormal chicks and PCB residue levels in eggs of colonial birds on the lower Great Lakes (1971-73). The Auk, 93(3), 434-442.

Goodwin, C.E. (1995). A Bird-Finding Guide to Ontario. Rev. ed. University of Toronto Press, Toronto, Ont.

Hatchwell, B. J. (1991). An experimental study of the effects of timing of breeding on the reproductive success of common guillemots (Uria aalge). *The Journal of Animal Ecology*, 721-736.

Haymes, G. T., & Blokpoel, H. (1978). Seasonal distribution and site tenacity of the Great Lakes Common Tern. Bird-Banding, 142-151.

Hernández-Matías, A., Jover, L., & Ruiz, X. (2003). Predation on common tern eggs in relation to sub-colony size, nest aggregation and breeding synchrony. *Waterbirds*, *26*(3), 280-289.

Herranz, J., Yanes, M., & Suárez, F. (2002). Does photo-monitoring affect nest predation?. *Journal of Field Ornithology*, *73*(1), 97-101.

Holt, D. W. (1994). Effects of Short-eared Owls on Common Tern colony desertion, reproduction, and mortality. Colonial waterbirds, 1-6.

Hunter, R. A., & Morris, R. D. (1976). Nocturnal predation by a Black-crowned Night Heron at a Common Tern colony. The Auk, 93(3), 629-633.

Jennings, G. (2012). The ecology of an urban colony of common terns Sterna hirundo in Leith Docks, Scotland(Doctoral dissertation, University of Glasgow).

Johnston, D., & Sturdee, I. (2016). The Breeding Birds of Tommy Thompson Park. Toronto, Ontario. Toronto and Region Conservation Authority, Toronto, Ontario.

Jung, T. S., Lausen, C. L., Talerico, J. M., & Slough, B. G. (2011). Opportunistic predation of a little brown bat (Myotis lucifugus) by a great horned owl (Bubo virginianus) in Southern Yukon. Northwestern Naturalist, 92(1), 69-72.

Kemp, C., Yarchuk, K., Menzies, A., & Popp, J. (2022). *A Guide to Using Wildlife Cameras for Ecological Monitoring in a Community-based Context*. https://wildcams.ca/site/assets/files/1386/cbm_wildlife_camera_guide-_aug2022.pdf

Kepler, C. B. (1967). Polynesian rat predation on nesting Laysan Albatrosses and other Pacific seabirds. The Auk, 84(3), 426-430.

Kopachena, J. G. (1991). Food dispersion, predation, and the relative advantage of colonial nesting. Colonial Waterbirds, 7-12.

Krüger, H., Väänänen, V. M., Holopainen, S., & Nummi, P. (2018). The new faces of nest predation in agricultural landscapes—a wildlife camera survey with artificial nests. *European Journal of Wildlife Research*, *64*(6), 76.

Kruuk, H. (1964). Predators and anti-predator behaviour of the black-headed gull (Larus ridibundus L.). Behaviour. supplement, III-129.

Lack, D. (1968). *Ecological adaptations for breeding in birds*(Vol. 33). London: Methuen.

Lima, S. L. (2009). Predators and the breeding bird: behavioral and reproductive flexibility under the risk of predation. Biological reviews, 84(3), 485-513.

Marshall, N. (1942). Night desertion by nesting Common Terns. The Wilson Bulletin, 25-31.

Martin, T. E. (1987). Artificial nest experiments: effects of nest appearance and type of predator. Condor, 925-928.

Maryland Department of Natural Resources . (2022). *Nesting Platform Initiative for Endangered Birds in Maryland Coastal Bays is a Big Success*. News.maryland.gov. https://news.maryland.gov/dnr/2022/09/29/nesting-platform-initiative-for-endangered-birds-in-maryland-coastal-bays-is-a-big-success/

Mayfield, H. (1961). Nesting success calculated from exposure. *The Wilson Bulletin*, 255-261.

Minias, P., Gach, K., Włodarczyk, R., Bartos, M., Drzewińska-Chańko, J., Rembowski, M., ... & Janiszewski, T. (2020). Colony size as a predictor of breeding behaviour in a common waterbird. *Plos one*, *15*(11), e0241602.

Morris, R. D., Blokpoel, H., & Tessier, G. D. (1992). Management efforts for the conservation of common tern Sterna hirundo colonies in the Great Lakes: two case histories. Biological Conservation, 60(1), 7-14.

Morris, R.D., & Hunter, R.A. (1976). "Factors Influencing Desertion of Colony Sites by Common Terns, Sterna hirundo." Canadian Field-Naturalist 90: pp. 137–43.

Morris, R. D., Kirkham, I. R., & Chardine, J. W. (1980). Management of a declining Common Tern colony. The Journal of Wildlife Management, 44(1), 241-245.

Morris, R. D., Pekarik, C., & Moore, D. J. (2012). Current status and abundance trends of Common Terns breeding at known coastal and inland nesting regions in Canada. Waterbirds, 35(2), 194-207.

Morris, R. D., Weseloh, D. V., Cuthbert, F. J., Pekarik, C., Wires, L. R., & Harper, L. (2010). Distribution and abundance of nesting common and Caspian terns on the North American Great Lakes, 1976 to 1999. *Journal of Great Lakes Research*, *36*(1), 44-56.

Morris, R. D., & Wiggins, D. A. (1986). Ruddy turnstones, great horned owls, and egg loss from common tern clutches. The Wilson Bulletin, 101-109.

Niemi, G. J., Davis, T. E., Veith, G. D., & Vieux, B. (1986). Organochlorine chemical residues in herring gulls, ring-billed gulls, and common terns of Western Lake Superior. Archives of environmental contamination and toxicology, 15, 313-320.

Nisbet, I. (1975). Selective effects of predation in a tern colony. The Condor, 77(2), 221-226.

Nisbet, I. C. T. (2002). Common tern Sterna hirundo. In 'The Birds of North America'.(Eds A. Poole and F. Gill.) No. 618. The Birds of North America Inc.: Philadelphia, PA.

Nisbet, I. C. T. (2002). Common Tern (*Sterna hirundo*). In A. Poole & F. Gill (Eds.), *The Birds of North America* (No. 618). The Birds of North America, Inc.

Nisbet, I. C. T., & Cohen, M. E. (1975). Asynchronous hatching in common and roseate terns, Sterna hirundo and S. dougallii. Ibis, 117(3), 374-379.

Nisbet, I. C. T, & Welton, M. J. (1984). Seasonal variations in breeding success of Common

Terns: consequences of predation. The Condor, 86(1), 53-60.

Nocera, J. J., & Kress, S. W. (1996). Nocturnal Predation on Common Terns by Great Black-Backed Gulis. Colonial Waterbirds, 277-279.

Owl Research Institute. (2021). *Owl Live Cams I Owl Research Institute*. Owlresearchinstitute. https://www.owlresearchinstitute.org/owl-live-cams

Peck, G.K., & R.D. James. (1983). Breeding Birds of Ontario: Nidiology and Distribution. Vol. 1: Nonpasserines. Life Sciences Miscellaneous Publications, Royal Ontario Museum, Toronto, Ont.

Prosser, D. J., Collier, T., Sullivan, J. D., Dale, K. E., Callahan, C. R., McGowan, P. C., ... & Raman, S. (2020). Using thermal infrared cameras to detect avian chicks at various distances and vegetative coverages. *Journal of Fish and Wildlife Management*, *11*(1), 245-257.

Richardson, T. W., Gardali, T., & Jenkins, S. H. (2009). Review and meta-analysis of camera effects on avian nest success. *The Journal of Wildlife Management*, *73*(2), 287-293.

Scharf, W., Chamberlin, M., Erdman, T., Shugart, G., & Shanks, L. (1977). Nesting and migration areas of birds in the US Great Lakes. Interim Report FWS/obs-77/2. Contract, 14, 16-0008.

Serré, S., Irvine, C., Lockhart, K., & Hebert, C. E. (2023). Great Horned Owls Affect Herring Gull Nest Attentiveness. Waterbirds, 46(1-2), 24-30.

Shealer, D. A., & Kress, S. W. (1991). Nocturnal abandonment response to Black-crowned Night-Heron disturbance in a Common Tern colony. Colonial Waterbirds, 51-56.

Southwell, C., & Emmerson, L. (2015). Remotely operating camera network expands Antarctic seabird observations of key breeding parameters for ecosystem monitoring and management. *Journal for Nature Conservation*, *23*, 1-8.

Southern, W. E., Patton, S. R., & Hanners, L. A. (1980, January). Differential response of Ring-billed Gulls and Herring Gulls to fox predation. In Proceedings of the Colonial Waterbird Group (Vol. 3, pp. 119-127). Waterbird Society.

Southern, L. K., Patton, S. R., & Southern, W. E. (1982). Nocturnal predation on Larus gulls. Colonial Waterbirds, 169-172.

Southern, L. K., & Southern, W. E. (1979, January). Absence of nocturnal predator defense mechanisms in breeding gulls. In Proceedings of the Colonial waterbird group (Vol. 2,

pp. 157-162). Waterbird Society.

Sudmann, S. R., Becker, P. H., & Wendeln, H. (1994). Sumpfohreule Asio flammeus und Waldohreule A. otus als Prädatoren in Kolonien der Flußseeschwalbe Sterna hirundo. Vogelwelt, 115, 121-126.

Sullivan, J. D., Marbán, P. R., Mullinax, J. M., Brinker, D. F., McGowan, P. C., Callahan, C. R., & Prosser, D. J. (2020). Assessing nest attentiveness of Common Terns via video cameras and temperature loggers. *Avian Research*, *11*, 1-18.

Szostek, K. L., Becker, P. H., Meyer, B. C., Sudmann, S. R., & Zintl, H. (2014). Colony size and not nest density drives reproductive output in the Common Tern S terna h irundo. *Ibis*, *156*(1), 48-59.

Tomazzoni, A. C., Pedó, E., & Hartz, S. M. (2004). Food habits of Great Horned Owls (Bubo virginianus) in the breeding season in Lami Biological Reserve, southern Brazil. Ornitologia Neotropical, 15(2), 279-282.

Trivers, R. L. (1974). Parent-offspring conflict. American zoologist, 14(1), 249-264.

Valero, M. M., & Palestis, B. G. (2019). Movements of Common Tern (Sterna hirundo) Chicks from the Nest with Age. *Waterbirds*, *42*(1), 107-111.

Vermeer, K. (1970). Breeding biology of California and ring-billed gulls: a study of ecological adaptation to the inland habitat (Vol. 12). Queen's Printer for Canada.

Willebrand, T., & Marcstr, V. (1988). On the danger of using dummy nests to study predation. The Auk, 105(2), 31.

Wilson, W.G., Cheskey, E., & IBA Steering Committee. (2001). Leslie Street Spit – Thompson Park Important Bird Area Conservation Plan. Canadian Nature Federation, Bird Studies Canada, Federation of Ontario Naturalists.

Winder, L. A., Simons, M. J., & Burke, T. (2022). The optimal clutch size revisited: separating individual quality from the parental survival costs of reproduction. *bioRxiv*, 2022-05.

Chapter 3

Rethinking Sustainability: Reflecting on the Role of Environmental Management Systems and NGO Partnerships in Achieving Sustainable Business Practices

Abstract

Environmental Management Systems (EMS), including ISO 14001, establish a systematic framework for embedding ecological principles into corporate operations to mitigate environmental impacts and foster sustainability. Similar to other environmental standards, ISO 14001 emphasizes resource efficiency, pollution control, and biodiversity preservation as core objectives. However, unlike mandatory frameworks, ISO 14001 relies on voluntary adoption, which often constrains its capacity for transformative environmental outcomes, particularly in the absence of enforceable regulations or standardized metrics. This paper examines the role of EMS in advancing conservation through two case studies: Patagonia, which demonstrates proactive integration of conservation objectives, and Rio Tinto, which highlights the limitations of reactive sustainability efforts. While Patagonia's initiatives demonstrate the potential of interdisciplinary collaboration and ethical leadership in advancing conservation goals, Rio Tinto's challenges highlight the limitations inherent in profit-driven motivations and weak governance structures. Moreover, the findings advocate for collaborative partnerships among businesses, NGOs, and governments, which are essential for redefining sustainability as a shared and actionable responsibility that aligns ecological objectives with long-term economic viability.

Keywords: business, EMS, NGO’s, funding, partnership, stakeholder, sustainability

Introduction

Conservation is a complex and multifaceted concept, with definitions often reflecting the priorities and perspectives of those defining it (Sandbrook, 2018). Many conservationists emphasize specific aspects of conservation, leading to varied interpretations of its scope and goals (Sandbrook, 2018). For example, Leader-Williams et al. (2011) define conservation as "actions that directly enhance the chances of habitats and species persisting in the wild." This definition underscores the importance of protecting habitats and species in their natural environments and proposes a specific set of actions to achieve these objectives (Leader-Williams et al., 2011). While widely accepted, this perspective does not encompass all conservation priorities (Sandbrook, 2018). Some initiatives focus on preserving the genetic diversity of agricultural crops, while others include urban and managed ecosystems as key conservation areas (Louafi et al., 2013; Scherr & McNeely, 2008). These variations highlight that definitions like Leader-Williams et al. (2011) address particular branches of conservation rather than its broader conceptual framework (Sandbrook, 2018). As exemplified by the "new conservation" literature, prolonged debates over the merits of these different definitions often detract from the broader challenge of identifying common principles and shared goals (Ladle & Whittaker, 2011; Brechin et al., 2003).

The urgency of conservation becomes evident when assessing the state of the planet's ecosystems. The Millennium Ecosystem Assessment (2005) revealed that approximately two-thirds of all ecosystem services are in decline, signalling a critical need for action. Businesses play a dual role in this dynamic: they are both significant users of ecosystem services and contributors to ecosystem change (The Millennium Ecosystem Assessment, 2005). Addressing the ongoing loss of biodiversity and ecosystem services requires engagement from various stakeholders, including businesses (Krause et al., 2021). However, the factors driving voluntary business commitments to conservation remain unclear (Krause et al., 2021). Historically, climate change has dominated the environmental discourse, but in recent years, biodiversity protection and nature conservation have gained increasing attention within the global business community (Krause et al., 2021). This shift has been accompanied by advancements in tools and initiatives to assess, value, and report on biodiversity and natural capital, such as the Natural Capital Protocol, the Aligning Biodiversity Measures for Business initiative, the ENCORE tool, and the

Integrated Biodiversity Assessment Tool (Whitaker, 2018; Encore, 2024; Capitals Coalition, 2024). By mid-2020, about 400 companies worldwide had joined the Business for Nature coalition, dedicated to halting the loss of nature (Krause et al., 2021).

Biodiversity conservation is shaped by an institutionalized network of individuals, organizations, and bodies of knowledge, which collectively influence its practices (MacDonald, 2010). Events like the World Conservation Congress (WCC) are critical political arenas for formalizing these networks and debates over conservation priorities (MacDonald, 2010). In the past decade, one significant source of contention has been the role of private sector actors and market-driven approaches in conservation (MacDonald, 2010).

A central issue in conservation economics is treating natural capital as a free resource with no assigned monetary value (Wackernagel & Rees, 1997). This undervaluation results in market signals prioritizing converting natural assets into economic goods—such as timber—without accounting for the loss of ecosystem services (Costanza & Folke, 1997). For example, while the profit from logging a forest appears on a nation's balance sheet, the lost services—such as climate regulation, water flow control, and the provision of medicinal plants—are rarely deducted (Chaplin-Kramer & Green, 2016). This discrepancy underscores the need for economic frameworks that internalize the value of ecosystem services, ensuring that decisions reflect their true environmental costs and benefits.

Conservation, therefore, is not just an ecological initiative but also an economic, political, and social challenge, and to achieve this meaningful progress, it is essential to integrate conservation efforts across sectors, develop inclusive frameworks, and recognize biodiversity's intrinsic and instrumental values. Such approaches must bridge the gap between ecological sustainability and economic feasibility, ensuring conservation becomes a shared responsibility among governments, businesses, and communities.

Although climate change policies and strategies have gained global traction, their effectiveness in transforming ideas into meaningful actions for adaptation and mitigation remains limited (Andersson & Keskitalo, 2018). The Intergovernmental Panel on Climate Change (1PCC) (2014) highlights that while knowledge is essential, it is insufficient to promote adaptive responses (Klein et al., 2014, p. 911). Persistent barriers to implementation emphasize the need

for strategies that extend beyond the sharing of knowledge and rather begin to focus on addressing systemic and practical challenges to encourage tangible progress (Andersson & Keskitalo, 2018). Firms and industries play a critical role in enabling societal adaptation to the physical consequences of climate change, particularly in highly impacted sectors such as agriculture, forestry, construction, and transportation (Andersson & Keskitalo, 2018). Despite this, the business and management field has faced significant criticism for its limited engagement with climate change, especially regarding adaptation to its physical effects (Linnenluecke et al., 2013). One study by Linnenluecke et al. (2013) reviewed current literature and found that most adaptation studies in the field center on how firms respond to evolving business conditions, such as the emergence of new competitors, products, markets, or shifts in political, economic, and legal frameworks. However, these studies often ignore firm-level responses to changes in the natural environment (Linnenluecke et al., 2013). Although research addressing firm and industry adaptation to climate impacts is slowly appearing, it remains limited (Linnenluecke et al., 2013). Furthermore, there is a deficiency in cross-disciplinary approaches that merge insights from the natural sciences into business strategies. Thus, the lack of collaboration has resulted in a significant gap in the literature and practice (Linnenluecke et al., 2013).

While climate change policies have gained global traction, their effectiveness in translating ideas into meaningful actions for adaptation and mitigation remains limited (Andersson & Keskitalo, 2018). The Intergovernmental Panel on Climate Change (IPCC) (2014) emphasizes that knowledge alone is insufficient to promote adaptive responses (Klein et al., 2014, p. 911). Persistent barriers to implementation highlight the need for strategies that address systemic and practical challenges to achieve tangible progress (Andersson & Keskitalo, 2018). Firms and industries play a key role in enabling societal adaptation to the physical consequences of climate change, particularly in highly impacted sectors such as agriculture, forestry, construction, and transportation (Andersson & Keskitalo, 2018).

However, the business and management field has faced significant criticism for its limited engagement with climate adaptation, particularly regarding responses to physical climate impacts (Linnenluecke et al., 2013). A review by Linnenluecke et al. (2013) found that most adaptation studies in the business literature focus on responses to evolving business conditions, such as shifts in markets, competitors, and regulatory frameworks, while largely ignoring firm-

level responses to changes in the natural environment. Although research addressing firm and industry adaptation to climate impacts is slowly emerging, it remains insufficient (Linnenluecke et al., 2013). Furthermore, the lack of cross-disciplinary approaches integrating natural science insights into business strategies exacerbates this gap, leaving significant deficiencies in literature and practice (Linnenluecke et al., 2013).

Businesses must adopt adaptation strategies that integrate ecological considerations with economic goals to address these challenges effectively. Achieving this requires collaborative efforts that unite diverse disciplines, fostering a holistic approach to align business practices with environmental realities and building long-term resilience.

The Role and Challenges of EMS in Corporate Sustainability

Since the 1960s, stakeholders have increasingly scrutinized corporations for the environmental degradation related to economic development (Hoffman, 2001; Hoffman & Bansal, 2012). Thus, this growing tension between economic growth and environmental responsibility has functioned as a crucial driver for corporate change (Hart, 1995), with stakeholder pressure and the risk of regulatory action encouraging companies to adopt environmental initiatives (Hoffman, 1999). In response, many businesses have adopted what Jermier et al. (2006: 618) term “new corporate environmentalism” (NCE). This approach stresses the voluntary and proactive management of environmental impacts in ways that surpass legal and regulatory requirements, promoting the notion that businesses can simultaneously achieve economic growth and ecological sustainability (Wright & Nyberg, 2017).

Environmental Management Systems (EMS) emerged in the mid-1980s as a response to growing environmental regulations in the US and proactive European companies seeing environmental challenges as opportunities (Alsiary, 2005). Tools such as environmental audits were first introduced to integrate strategy and manage risks (Steger, 1991). The commencement of the 1992 Earth Summit further accentuated corporate responsibility, laying the foundational tools for ISO 14001 in 1995, which led to EMS standards and later expanded with additional guidelines (Steger, 2000). Meanwhile, the European Union founded the Eco-Management and Audit Scheme (EMAS) in 1993, requiring industries to submit validated environmental

declarations, promoting transparency and accountability (Steger, 2000). These initiatives created a shift from compliance to a strategic environmental management mentality.

An EMS helps reduce an organization's environmental impact by creating various plans and practices (Stapleton et al., 2001). The practice is not limited to large corporations, as small or medium-sized organizations can use EMS and decide to develop in compliance with ISO 14001 standards (Stapleton et al., 2001). The International Organization for Standardization (ISO) is an international non-government organization that designed ISO 14001 to deliver explicit requirements and procedures to generate minimal adverse environmental effects and improve ecosystem production (Moldovan, 2015). ISO 14001 is based on a plan-do-check-act (PDCA) model of improvement (Moldovan, 2015). Importantly, the model's process must continuously provide benefits and maintain standards, adjusting the model as necessary (Moldovan, 2015).

A traditional EMS is based on a holistic approach, with high-quality EMSs reinforcing that primary customers are the local, provincial or federal environment, and secondary customers are owners, stakeholders, and governments (Petak, 1981). The approach can lessen an organization's environmental impact and can, in turn, aid in healthier ecosystems (Petak, 1981). In Canada, The Standards Council of Canada (SCC) approved ISO 14001 as a National Standards of Canada (NCS) named CAN/CSA-ISO 14001-16 (Standards Council of Canada, 2016). Natural resource management in Canada is primarily governed at the provincial or territorial level, with federal environmental policy largely adhering to a command-and-control regulatory framework (Henriques & Sadorsky, 2004). Historically, this approach has emphasized permissive, negotiation-driven interactions between corporations and the government rather than strict mandatory measures (Henriques & Sadorsky, 2004). While the internationally recognized EMS guideline ISO 14001 provides a standardized framework for environmental management, its implementation is influenced by local, provincial, and federal jurisdictions. Consequently, significant variations in provincial environmental policies can lead to corporate environmental strategies that reflect stringent or lenient regulatory standards.

The environmental effectiveness of EMS remains uncertain, as much of the literature has focused on economic costs and benefits rather than the systems' environmental impacts (Hertin et al., 2008). Current research suggests that the mere presence of an EMS does not guarantee

environmental efficacy; rather, the system's quality and the organization's approach to environmental management play a more significant role (Coglianese & Nash, 2001; Thornton et al., 2003). Additionally, the effectiveness of EMS can vary depending on contextual factors, such as the country in which the system is implemented. For instance, Kollman and Prakash (2002) argue that national differences influence the benefits businesses derive from EMS, with higher incentives making the program more appealing.

This variation aligns with neoclassical economic theory, which argues that voluntary approaches, like EMS, are most effective when they maximize profits (Friedman, 1970). However, while EMS can provide avenues for profit maximization, the high costs associated with implementation and maintenance often diminish its appeal (Kolk, 2000). Another challenge lies in reconciling the ethical considerations of environmental preservation with profit-driven motivations (Kolk, 2000). Organizations guided by a moral obligation to environmental stewardship will likely implement strategies with greater positive impacts (Kolk, 2000). However, EMS's voluntary nature raises concerns about engaging stakeholders with differing ethical priorities (Kolk, 2000).

One study from Henriques & Sadorsky (2004) found that motivations driving environmental policies significantly affect their outcomes, identifying regulatory compliance as the primary motivator for stakeholders to adopt environmental practices, emphasizing the pivotal role of regulatory authorities in fostering environmental action. These findings suggest that while EMS has potential, its success depends on robust regulatory frameworks, strategic design, and alignment with both economic and ethical considerations.

The effectiveness of EMS in advancing environmental sustainability relies on a multifaceted approach. Central to this is establishing clear, measurable, and achievable objectives aligned with broader sustainability goals, which provide benchmarks to guide organizational efforts (Lundberg et al., 2009). Leadership from top management is equally vital, ensuring sustainability is prioritized, resources are allocated effectively, and EMS practices are integrated into core business strategies (Zutshi & Sohal, 2004). Stakeholder engagement, encompassing employees, suppliers, customers, and communities, fosters accountability and enriches the EMS with diverse perspectives, enhancing its effectiveness (Martin-Gill et al.,

2016). Employee awareness and training are also critical for widespread participation, equipping the workforce to actively contribute to sustainability initiatives (Martin-Gill et al., 2016).

Although regulatory compliance is the foundation for an effective EMS, programs extend beyond legal obligations by adopting proactive strategies to reduce environmental impact and promote innovation (Welch, 2018). These strategies must be embedded into daily operations through clear guidelines, ongoing training, and a culture of sustainability (Cooper, 2011). Furthermore, continuous monitoring, audits, and reviews are essential for identifying weaknesses, tracking progress, and adapting to evolving circumstances and technologies (Karapetrovic & Willborn, 1998; Hervani et al., 2005). Moreover, data-driven decision-making further strengthens EMS effectiveness by enabling organizations to optimize resource use and assess the outcomes of their sustainability efforts (Awan et al., 2021; Hervani et al., 2005). Transparency and accountability are vital for enhancing EMS implementation. Public reporting on environmental performance helps build trust and credibility while driving continuous improvement (Steger, 2000). Moreover, EMS's adaptability to local and global contexts ensures its relevance by addressing specific environmental challenges, industry needs, and regional conditions (Pezzoli, 1999). While EMS has limitations in achieving comprehensive green business practices, it remains a valuable tool for strategically structuring and improving sustainability efforts.

The effectiveness of EMS in achieving successful conservation remains uncertain due to various factors, including reliance on voluntary adoption, competing corporate priorities, ethical considerations, variations in provincial environmental policies, and the limited enforcement of corporate liability in Canada (Friedman, 1970; Kolk, 2000; Petak, 1981).). These factors raise the question of whether an EMS, implemented solely on its core principles and free from external pressures, could significantly enhance environmental outcomes and strengthen Canada's conservation efforts.

In the 1990s, Canada experimented with incentive-based environmental initiatives; however, these efforts greatly failed, with only a few original incentives still available today for eligible organizations (Henriques Sadorsky, 2004). This underscores the argument that effective environmental policy may not depend on incentives but on forcing mandatory regulations.

Henriques and Sadorsky (2004) emphasize that holding organizations accountable for environmental damage is the most impactful policy tool. Their findings suggest that stricter government regulations could compel companies to adopt more robust environmental practices driven by the need to mitigate liability risk (Henriques & Sadorsky, 2004).

The Role of NGO-Business Partnerships in Advancing Sustainability through EMS

A distinctive feature of EMS is its emphasis on collaboration with stakeholders, including governments, NGOs, and local communities. These collaborations are central to EMS frameworks, facilitating innovative conservation projects, resource sharing, and establishing best practices (Pezzoli, 1999; Gunningham, 2007; Delmas & Toffel, 2004). Such partnerships amplify EMS's positive environmental impact and enhance conservation initiatives' scalability (Hartman et al., 1999). Defining what constitutes a non-governmental organization (NGO) is challenging; analyzing NGOs is greatly complex, and there is no current universally accepted definition (Lewis, 2010). The complexities arise from the diverse nature of NGOs, which span from small, informal collectives to large, formal organizations, with their roles and structures differing significantly across societies (Lewis, 2010). Consequently, the classification of "NGO" remains intricate and ambiguous (Lewis, 2010).

While NGOs are typically characterized by their independence from government and profit motives, some rely heavily on government funding, while others generate profits to reinvest in their work (Lewis, 2010). This creates a blurry distinction and highlights the difficulty of defining NGOs, as the classification focuses on what they are *not*—government-run or profit-driven—rather than what they *are* (Lewis, 2010). Consequently, NGOs are challenging to analyze and categorize, leading to ongoing debates about what qualifies as an NGO and the most effective methods for studying their roles (Lewis, 2010). Despite NGOs varying vastly in size and desired goals, all share the primary dilemma: the lack of available resources (Velaphi, 2012). Many NGOs find their current donations and grants insufficient to operate their programs and much less increase program activities (Viravaidya & Hayssen, 2001).

For NGOs, financial assistance can be obtained in three main forms: firstly, via third parties for personal satisfaction emanated from doing good (donations and grants); secondly, via beneficiaries of the NGO programs who value participation more than the cost of participating

(cost recovery): thirdly unrelated third parties who will provide funding for the NGO in return for something of value (commercial ventures) (Viravaidya & Hayssen, 2001). Donations and grants have been the primary source of income for most NGOs, with much literature focusing on establishing funding-raising campaigns (Barr et al., 2005; Rhoden, 2014). When assessing funding prospects, NGOs evaluate their organization's values, abilities, and needs. Some NGOs may depend solely on philanthropic support; however, diversification of financial support is well advised rather than relying on a single source (Viravaidya & Hayssen, 2001).

Private investors frequently support holding a mixed portfolio of investments as it reduces a business's unsystematic risk but does not impact its systematic risk (Lubatkin & Chatterjee, 1994). The fundamental idea of portfolio diversification in promoting financial security also applies to NGOs needing a continuous secure income (Viravaidya & Hayssen, 2001). Viravaidya & Hayssen (2001) mention that most successful NGOs think in business terms and possess most of the necessary business skills.

Organizational management is the frontline of achieving a company's goals and moral ethics. Previously, companies explicitly gave owners and shareholders the title of stakeholder; however, the idea of who was a stakeholder shifted in 1984 when R. Edward Freeman first proposed the stakeholder theory, which extended stakeholders to "Any group or individual who can affect or is affected by the achievement of the firm's objectives" (Freeman, 2010, p. 25). The idea provided a new perspective and unveiled the strategic importance of involving not only owners or stockholders but also other groups (Clement, 2005). Although literature importance concerning management, specifically in sustainability, has increased, limitations exist in incorporating a model that includes "the changing organization-and-environment field and its implications in the long term; the interdependence and integration of relationships of humans, organizations, and society; and the paradoxical demands inherent in a dynamic society" (Starik & Kanashiro, 2013, p. 13). Concerning stakeholder theory, Starik & Kanashiro (2013) argue that stakeholders should include future generations and non-human nature. However, such limitations with other sustainability management theories are prevalent, as Pogutz & Winn (2009) argue that sustainability literature has not sufficiently acknowledged the interdependence of businesses and the natural environment.

Given that limitations have been addressed specifically in stakeholder theory, evidence from the available literature indicates businesses rely on reactions to stakeholders that will generate improved profit (Clement, 2005). Although corporations should be able to make a profit, stakeholder theory implies that society has higher expectations from business leaders (Clement, 2005). Notably, an emerging benchmark of corporate performance is a corporation's effect on its stakeholders (Clement, 2005). However, societal benefits are not mutually exclusive from profit, as corporations can adopt a marketing-orientated philanthropy that enhances both society and the bottom line (Heap, 1998).

Examining the transition of a corporation's success based on maximizing profits to integrating businesses, civil society and state interests further boosts the business NGO relationship (Porter, 2021). Although businesses and NGOs have different goals, values, and cultures, a partnership can benefit both parties. When examining what the private sector wants and what NGOs offer, one major driver for engagement is reputation enhancement (Heap, 1998). This driver is the primary mechanism campaigning NGOs utilize to acquire partnerships (Heap, 1998). Companies are aware of the increased importance of reputation, given consumer pressure, and will avoid reputation damage no matter the price (Heap, 1998). Previous strategies to combat campaigning NGOs have shifted to dialogue and potential collaboration (Heap, 1998). For corporations, NGOs can provide an external challenge by acting and advocating for societal views on business behaviour. Such insight has become increasingly important; even more, Marsden & Andriof (1998) argue that the two parties can do more together than separately.

Social competition is like market competition: all businesses need efficiency, which counterbalances the power to perform productively for their benefit and society (Heap, 1998). Credibility is another benefit NGOs provide corporations. Some companies devise policies toward social responsibility, requiring them to participate in the community they operate, which can result in an opportunity to protect their investment and the community (Hohnen & Potts, 2007). Lewis (1998) notes that NGOs have expertise in maximizing available resources and offering insight into stakeholder management regarding shareholders, staff, customers, and the community. Creating a good reputation affects not only employees and their morale but also business partners, suppliers, and customers, who have been shown to opt for working with reputable companies (Taskforce 2002, 1997). The private sector also wants the opportunity to

exhibit corporate philanthropy combined with deflecting negative public confrontations. Collins (1992) notes that Corporate Community Involvement (CCI) has shifted from looking good to doing good; however, if such philanthropy is carried out poorly, it can yield more damage than good to the company's reputation.

The potential dynamic partnership presents distinct benefits for NGOs, one significant advantage being access to networks and contacts (Heap, 1998). Gaining access to contacts via the private sector allows NGOs to acquire potential, influential contacts in the public and private sectors (Heap, 1998). On their own, NGOs often have trouble reaching a particular audience and gaining exposure; having an influential voice can aid in fulfilling this void (Heap, 1998). The private sector can also offer financial discipline and customer focus; companies can share knowledge and mechanisms to achieve clearer staff roles and accountabilities (Langfield-Smith & Smith, 2003). In terms of management and organizational advancements, companies outperform NGOs (Heap, 1998). Those skilled in these advancements can be highly beneficial to NGOs by providing insights into distinct management styles and business skills, an innovative, risk-taking outlook, the installation of leadership, and the ability to focus and yield results (Heap, 1998).

Given that NGOs and the private sector have different drivers to engage with one another, Samii et al. (2002) noted specific requirements that create an effective partnership between businesses and NGOs, including resource dependency, commitment, shared goals, converging work cultures, and strong communication. However, such partnerships between NGOs and the private sector raise key issues, according to Samii et al. (2002). Understanding each party's needs is required; partnerships are based on achieving a specific goal while simultaneously reaping the benefits (Heap, 1998). All parties would be more promising if NGOs outlined precisely what they wish for before approaching corporations, as immense effort often digresses into ill-suited partners and unrealistic goals (Heap, 1998). NGOs need to lay out specific key issues they wish to address; however, some companies may be unable or unwilling to assist (Heap, 1998). Motivations often differ and may present conflicting interests within different stages of the partnership despite a shared goal (Pante, 1996); thus, conflict and resolution should be anticipated. However, defining a shared purpose with a priority on goals and a mutual agreement on explicit time frames, leading to realistic and measurable accomplishments

can assist in reducing conflict (Pante, 1996). However, while NGOs seek funding from the private sector, accepting such funding may result in internal conflict, as ethical dilemmas can occur with direct corporate funding (Heap, 1998). To combat ethical dilemmas, NGOs may establish technical assistance bodies that advise businesses; funding does not complicate the advice (Heap, 1998). An instrumental feature is that intermediaries can mediate and act catalytically in fostering NGO and business relationships by developing a necessary level of understanding and trust (Heap, 1998). One limitation to forming such partnerships is the limited number of parties that comprehensively understand NGOs and the private sector; thus, finite knowledge exists regarding how both parties can successfully engage with one another (Heap, 1998). At their core, NGOs rely on integrity and public trust, maintaining higher public approval compared to business partners (Baur & Schmitz, 2012).

Given that NGOs are focused on social benefits, a forefront requirement for engaging with corporations is becoming trust (Dahan et al., 2010). Trust is becoming even more crucial as if relations with respective business partners were to fall out; both could observe massive ramifications (Dahan et al., 2010). Although NGOs take advantage of weaponizing corporate reputation, they repeatedly find themselves committing resources to defending their reputation due to being linked to a controversial company (Baur & Schmitz, 2012). Nonetheless, a critical concept persists that NGOs should not endorse businesses but should interact with them critically (Heap, 1998).

Despite increasing global attention to sustainability, businesses remain far from fulfilling their potential as agents of meaningful environmental change. While corporate environmentalism has emerged as a strategy to address competing market and environmental demands (Hoffman, 2001; Jermier et al., 2006), it often falls short of the transformative action required to combat climate change and environmental degradation. This inadequacy is compounded by the complexities surrounding sustainability, which lacks a universal definition and is often narrowly interpreted by organizations to suit their immediate interests. According to Fibuch and Way (2012), over 50 definitions of sustainability are in the literature, highlighting the conceptual fragmentation that undermines cohesive action.

Although businesses have responded to stakeholder pressure and regulatory threats by adopting sustainability measures, their efforts remain largely reactive and insufficiently ambitious. Corporate environmentalism often emphasizes voluntary action, such as improving eco-efficiency, streamlining supply chains, and engaging in "green" marketing (Hart, 1995; Porter & van der Linde, 1995; Russo & Fouts, 1997). While these initiatives represent progress, they prioritize cost savings, market gains, and public relations over genuine ecological stewardship (Wright & Nyberg, 2017). Furthermore, many of the world's major corporations, despite positioning themselves as key agents of climate action, have been the largest contributors to escalating greenhouse gas emissions (Heede, 2014) and have historically lobbied against emissions mitigation efforts (Helm, 2010; Kolk & Pinkse, 2007; Levy & Egan, 2003).

The lack of a clear, actionable framework for sustainability exacerbates these shortcomings. Sustainability's evolving and multifaceted nature often leads organizations to adopt narrow, self-serving interpretations, focusing only on aspects directly tied to their performance. This fragmented understanding stifles systemic change and perpetuates the false dichotomy between economic growth and environmental responsibility. Epstein & Yuthas (2012) highlight the absence of reliable methods for assessing sustainability outcomes, further complicating efforts to align business practices with broader ecological goals.

Examining EMS Failures: A Case Study of Rio Tinto's Environmental Efforts

Rio Tinto, an international mining company, presents itself as a global leader in sustainable mining practices, leveraging Environmental Management Systems (EMS) to showcase its commitment to reducing environmental harm. By 2005, 90% of Rio Tinto's operations were certified to ISO 14001 or equivalent EMS standards (IUCN, 2007). The company's practices align with the International Council on Mining & Metals (ICMM) Sustainable Development Framework, ostensibly ensuring ethical business operations and continuous improvement in environmental performance (Rio Tinto, n.d.).

Rio Tinto's conservation efforts include partnerships with global and regional conservation NGOs, such as BirdLife International, Conservation International, and Fauna & Flora International, which help shape biodiversity strategies across its operations (Rio Tinto, 2023). For example, in Madagascar, the QIT Madagascar Minerals (QMM) operation established

a Biodiversity and Natural Resources Management Committee facilitated by the International Union for the Conservation of Nature (IUCN). This initiative seeks to balance local resource needs with conservation goals (Rio Tinto, 2024). Furthermore, Rio Tinto's $16 million investment in the Makira Natural Park REDD+ Project supports the protection of 372,000 hectares of forest—home to 17 lemur species and over half of Madagascar's botanical diversity—while promoting sustainable agriculture and benefiting 90,000 local residents (Rio Tinto, 2024b).

In Australia, Rio Tinto's initiatives include the protection of endangered northern quolls (*Dasyurus hallucatus*) at its Weipa bauxite operations, where ecologists and Indigenous rangers collaborate to monitor and safeguard these marsupials (Rio Tinto, 2024). Additionally, the company has explored renewable energy through a pilot project in Queensland, cultivating Pongamia (*Millettia pinnata*) trees for renewable diesel production (Reuters, 2024). In Canada, Rio Tinto supports the Nechako White Sturgeon Recovery Initiative in British Columbia, aiming to rebuild White Sturgeon (*Acipenser transmontanus*) populations of this at-risk species in partnership with governments, environmental groups, and First Nations (Rio Tinto, n.d.).

Despite its conservation initiatives, Rio Tinto's track record reveals a glaring lack of motivation to prioritize meaningful environmental impact. The company's primary driver remains profit, with sustainability efforts often serving as reactive measures to mitigate the damage already inflicted. For instance, in Madagascar, residents allege that the QMM operation contaminated water sources with hazardous levels of uranium and lead, endangering 15,000 people reliant on these waters for drinking and domestic use (Leighday, 2024). Such environmental degradation underscores the insufficient preventative measures taken by the company, reflecting a focus on economic gain over ecological preservation.

Globally, Rio Tinto's operations have caused significant harm. At the Grasberg mine in Indonesia, a joint venture with Freeport McMoRan, approximately 80 million tonnes of tailings are dumped into waterways annually, contributing to catastrophic ecological damage (Earthworks, 2022). The legacy of the Panguna copper mine in Papua New Guinea—one of the world's largest copper and gold mines—further exemplifies the company's disregard for long-term environmental impacts. From 1972 to 1989, over a billion tonnes of waste were discharged

into rivers, devastating ecosystems. Although Rio Tinto divested its shares in 2016, it has yet to take responsibility for the unremediated site (Wilson, 2017; Feng, 2024).

Additional controversies include uranium mining in Western Australia and Africa, where operations have been linked to pollution and alleged detrimental health impacts on local communities (RepRisk, 2012)—in Arnhem Land, Australia, Rio Tinto's Bell Bay smelter spilled 62,000 litres of unleaded petrol, contaminating soil and groundwater (RepRisk, 2012). These incidents highlight the company's failure to prioritize environmental and social responsibilities, reinforcing the narrative that profit remains its central motivation.

Mining's inherent nature—extracting finite resources, generating waste, and degrading ecosystems—limits its ability to be fully sustainable. While initiatives such as renewable energy adoption, biodiversity offsets, and improved resource efficiency can mitigate some impacts, they cannot address the core unsustainability of the industry. Rio Tinto is not the only major company with this framework and ceratin motivations others such as BHB, whose 98% of sites requiring ISO 14001 were certified or had been recommended for certification by their ISO auditor in 2005 (IUCN, 2007). BHB has used similar tactics under their EMS framework and has faced equitant controversies regarding environmental degradation as Rio Tinto, highlighting an industry trend rather than key players. Despite its potential, Rio TinTinto'sd and others, including BHB'sS framework, often operate within the constraints of weak governance and regulatory environments. Many of the company's stainability efforts are reactive, aimed at controlling reputational damage rather than fostering proactive environmental stewardship.

Moreover, the company's reliance on biodiversity offsetting, as seen in Madagascar, is deeply flawed. Critics argue that offset programs, which involve creating or restoring habitats to compensate for destroyed ecosystems, fail to deliver meaningful conservation outcomes. The underlying assumptions of such programs often undervalue existing ecosystems and rely on speculative future benefits that are difficult to quantify (Temple et al., 2012).

Rio Tinto's sustainability narrative is undermined by its consistent prioritization of profit over meaningful environmental impact. While its EMS initiatives showcase a surface-level commitment to conservation, they largely serve to mitigate damage after the fact rather than prevent it. This issue, however, is not unique to Rio Tinto but reflects a systemic challenge

within the mining industry. Other major players, such as BHP, have faced comparable controversies over environmental degradation, highlighting that the industry's practices are driven more by profit motivations than by a genuine commitment to sustainability. Weak governance frameworks and voluntary international standards further enable companies across the sector to avoid accountability for their environmental legacies. Without a fundamental shift in priorities—one that places equal weight on sustainability and profit—mining companies will continue to operate as inherently unsustainable entities, with EMS frameworks serving as insufficient solutions to systemic challenges.

Examining EMS Success: A Case Study of Patagonia's Environmental Efforts

Patagonia, a renowned outdoor apparel company, has positioned itself as a global leader in integrating environmental responsibility into its business practices (Krchová, 2019; Rattalino, 2018; Chouinard, 2016). Guided by its mission to "save our home planet" (Patagonia, 2019a), the company leverages Environmental Management Systems (EMS) to promote ecological preservation and social responsibility. Unlike many corporations whose sustainability initiatives are reactionary or driven primarily by regulatory compliance (Kagan et al., 2003), Patagonia consistently adopts proactive and innovative strategies that embed environmental stewardship as a core tenet of its operations (Khan, 2023).

Patagonia's EMS exemplifies a holistic approach by reducing environmental impact across the product lifecycle while continuously improving environmental objectives (Bosco, 2017; Khan et al., 2024). Central to this strategy is the company's use of sustainable materials, including organic cotton, recycled polyester, and other eco-friendly alternatives (Kumari et al., 2024; Ma et al., 2024). In 1996, Patagonia committed to producing 100% organic cotton apparel, overcoming resistance from suppliers by framing organic production as a competitive advantage (Pongtratic, 2007). This transition differentiated Patagonia in the market and influenced major competitors, such as Nike and Levi's, to adopt organic materials, demonstrating the company's capacity to drive industry-wide environmental change (Chouinard & Stanley, 2012).

Another key initiative is Patagonia's *Worn Wear* program, which encourages customers to repair, reuse, and recycle their garments (Bürklin, 2019). By extending the lifespan of products, this program reduces textile waste and alleviates ecosystem pressure by limiting

resource extraction (Bürklin, 2019). The initiative has grown to include repair events in major cities and an online resale platform, enabling customers to purchase second hand Patagonia products (Bürklin, 2019). Between 2005 and 2016, the program successfully recycled approximately 95 tons of textiles, significantly reducing landfill contributions while conserving natural resources (Rattalino, 2018).

Patagonia's *1% for the Planet* initiative further reinforces its leadership in conservation (1% For The Planet, 2024). Since 1985, the company has donated 1% of its total sales to grassroots environmental initiatives, contributing over $140 million to projects focused on biodiversity protection, deforestation mitigation, and climate change adaptation (1% For The Planet, 2024; Patagonia, n.d.). Through partnerships with NGOs, advocacy groups, and research institutions, Patagonia actively engages in policy advocacy and public campaigns, amplifying its impact on global conservation efforts (1% For The Planet, 2024).

Patagonia's commitment to conservation extends to promoting regenerative agriculture. Its *Regenerative Organic Certified® Cotton* program supports over 2,000 farmers in adopting sustainable farming practices that restore soil health, enhance biodiversity, and improve water retention (Patagonia, 2019a). Patagonia has also taken a prominent role in advocating for public land conservation, a cornerstone of its environmental strategy. In response to the Trump administration's controversial 2017 decision to drastically reduce the size of Bears Ears and Grand Staircase-Escalante National Monuments, Patagonia launched the politically charged campaign *"The President Stole Your Land"* (Macary & Gillig, 2024). This initiative condemned the federal government's actions (Stoilas, 2018) and mobilized public engagement, encouraging customers to advocate for conservation through petitions and protests (Dalrymple, 2017). Furthermore, Patagonia joined Native American tribes and environmental organizations in filing a lawsuit against the U.S. government to challenge the legality of the monument reductions (AP News, 2017). This unprecedented legal action demonstrated Patagonia's belief in corporate accountability as a tool for environmental justice and Indigenous rights, setting a precedent for broader corporate engagement in public land protection (Patagonia, 2019b).

Despite its successes, Patagonia acknowledges the inherent challenges and contradictions in balancing business growth with conservation. The global textile industry significantly

contributes to environmental degradation, accounting for approximately 10% of global emissions, 20% of wastewater pollution, and 92 million tons of discarded textiles annually (Abbate et al., 2023). Although Patagonia's initiatives mitigate these impacts, they cannot fully eliminate them, highlighting the tension between industrial production and environmental sustainability.

Patagonia's marketing campaigns reflect this paradox. The 2012 *"Don't Buy This Jacket"* campaign was designed to discourage unnecessary consumerism, and the 2016 Black Friday pledge to donate all revenue to environmental groups paradoxically increased sales (Payne, 2018). For example, the 2012 campaign led to a 30% rise in revenue (Cohune, 2019). While these campaigns raised significant funds for conservation, they also perpetuated resource extraction and production, underscoring the complexities of aligning corporate growth with conservation goals (Patagonia, n.d.).

Patagonia's approach to addressing hazardous chemicals in textile production has also faced criticism. The company continues using Durable Water Repellent (DWR), which contains perfluorooctanoic acid (PFOA), a synthetic compound linked to environmental and health risks (O'Rourke & Strand, 2017). These substances persist in ecosystems, contaminating water, air, and biological tissues globally (Najam & Alam, 2023; Mishra, 2023). While Patagonia argues that no viable alternatives currently meet the performance demands of outdoor apparel, its hesitation to align with Greenpeace's *Detox* campaign has raised questions about its commitment to phasing out harmful chemicals (Cobbing et al., 2017; Schillmann, 2020).

Patagonia exemplifies how businesses can balance economic success with meaningful conservation efforts when guided by genuine commitment and accountability. Patagonia has redefined corporate responsibility in sustainability through initiatives such as the *Worn Wear* program, regenerative agriculture projects, and public lands advocacy. Its transparency about challenges, including hazardous chemicals and the limits of voluntary action, reinforces its authenticity and sets a benchmark for continuous improvement.

Founder Yvon Chouinard's decision to transfer 98% of Patagonia's shares to the Holdfast Collective, a nonprofit dedicated to climate activism, underscores the company's deep-rooted commitment to long-term environmental stewardship (McCormick, 2022). While some critics

have pointed out the potential tax advantages, the structural shift ensures that Patagonia's profits are directed toward meaningful environmental initiatives (Smith, 2022).

Patagonia's evolution demonstrates the potential of Environmental Management Systems (EMS) as powerful tools for advancing conservation objectives. Achieving systemic change requires the widespread adoption of similar practices across industries and the development of robust regulatory frameworks to elevate sustainability from a voluntary initiative to an industry-wide standard. Patagonia's leadership exemplifies how environmental responsibility can be effectively integrated into business strategies and highlights the inherent challenges of pursuing sustainability within resource-intensive sectors.

EMS and Biodiversity Conservation: Corporate Challenges and Opportunities

Conservation efforts focus on safeguarding biodiversity, including species' genetic diversity, habitats, and ecosystems, to maintain ecological balance and ecosystem services (Rawat & Agarwal, 2015; De Klemm & Shine, 1993; Coates et al., 2018). These efforts are critical in addressing global challenges such as climate change, habitat degradation, and the sustainable use of natural resources (Rawat & Agarwal, 2015). For organizations and industries with significant environmental footprints, Environmental Management Systems (EMS) offer a structured framework to mitigate environmental harm and integrate sustainable practices into their operations (Kumari et al., 2024; Esiri et al., 2024; Hill & Bowen, 1997).

Environmental Management Systems (EMS) have the potential to support conservation efforts by fostering efficient management of resources such as water, energy, and raw materials while addressing pollution through the systematic identification and reduction of emissions, waste, and harmful discharges (Salim et al., 2018; Sira, 2024). However, their effectiveness remains uncertain and context-dependent. While some studies suggest that EMS adoption can improve environmental performance, others raise questions about their ability to drive meaningful change (Oglanis & Loizidou, 2017; Edwards et al., 1999). For example, Edwards et al. (1999) identified cases where EMS implementation did not lead to measurable environmental gains, potentially due to voluntary participation and weak regulatory frameworks. These mixed conclusions emphasize the need for further investigation into the factors that

influence the success of EMS across different organizational and geographical contexts (Oglanis & Loizidou, 2017).

Many multinational corporations (MNCs) have adopted EMS to reduce their environmental impacts, demonstrating its scalability across sectors (London & Hart, 2004). For instance, Ford Motor Company implemented ISO 14001 guidelines across all manufacturing facilities by 1998 and mandated EMS certification for its global suppliers (Wilson, 2001). Other automakers, such as General Motors, Toyota, and Daimler-Chrysler, followed suit, making EMS certification an industry standard (Sabatini, 2000).

Similarly, IBM achieved a global ISO 14001 certification in 1997, extending it to additional sites by 1999 (IBM, 2000). The Royal Dutch/Shell Group and Bristol-Myers Squibb also integrated EMS into their operations, achieving ISO 14001 certification across most facilities by the early 2000s (Royal Dutch/Shell Group, 2000; Bristol-Myers Squibb, 2000). These examples illustrate the capacity of EMS to standardize environmental practices and drive conservation within diverse industries.

Despite these successes, challenges persist in developing effective business models for biodiversity conservation. Biodiversity is inherently complex, encompassing genes, species, and ecosystems (Sala & Knowlton, 2006; Hay & Fenical, 1996). Businesses interact with biodiversity in multifaceted ways—as a resource input, an economic output, a competitor for resources, or a victim of industrial pollution (Panwar, 2023). These interactions complicate the design of conservation strategies, particularly in the absence of standardized performance indicators and weak enforcement mechanisms (Gupta et al., 2019).

Inadequate property rights, weak liability mechanisms, and insufficient financial incentives present significant obstacles to advancing effective conservation efforts (Bishop et al., 2009). Addressing these barriers requires recognizing and accounting for the environmental costs of economic activities, such as logging, where the loss of vital ecosystem services—including climate regulation and water management—remains largely unaccounted for in national financial systems, thereby undermining sustainable resource management (Bishop et al., 2009).

Corporate motivations significantly impact the effectiveness of EMS and broader conservation strategies. Research shows businesses often adopt sustainability measures in response to stakeholder pressures, regulatory requirements, or reputational concerns rather than intrinsic ecological values (Krause et al., 2021). For instance, 618 German companies surveyed by Krause et al. (2021) expressed favourable attitudes toward biodiversity conservation but noted financial and knowledge barriers to implementation.

The Western focus on short-term profitability and self-interest has fostered a corporate culture that prioritizes economic growth at the expense of ecological integrity (Wright & Nyberg, 2017). While sustainability is increasingly framed as a competitive advantage, corporate efforts to address climate change and biodiversity loss remain largely incremental, failing to drive the systemic transformation required (Wright & Nyberg, 2017). This fragmented approach to sustainability, coupled with an overreliance on voluntary initiatives, limits the potential of Environmental Management Systems (EMS) to deliver meaningful conservation outcomes.

Businesses must move beyond voluntary, market-driven approaches and adopt systemic strategies that align economic growth with ecological resilience (Lambin, 2014; Inigo & Albareda, 2019). Achieving meaningful conservation outcomes requires a paradigm shift in corporate environmentalism (Edwards, 2005). This shift necessitates integrating ecological principles into core business strategies, supported by robust regulatory frameworks and interdisciplinary collaboration (Winn & Pogutz, 2013).

Collaboration between businesses, governments, and conservation organizations is critical to scaling conservation initiatives and addressing the complexities of biodiversity preservation (Boiral & Heras-Saizarbitoria, 2017; Clement et al., 2015). Research from terrestrial and marine conservation initiatives underscores the critical role of local community engagement and the integration of indigenous knowledge in fostering long-term environmental stewardship (Cernea, 1991; Pretty, 1995a; Singh & Ballabh, 1997). Collaborative partnerships that leverage these local insights not only address resource constraints but also drive innovation, ensuring that conservation strategies are both inclusive and effective (Join The Collective, 2024).

Conclusion

Achieving sustainable business practices through Environmental Management Systems (EMS) presents significant complexities and challenges. While frameworks like ISO 14001 have facilitated advancements in organizational self-regulation and environmental accountability, their voluntary nature and reliance on corporate incentives constrain their overall effectiveness (Oglanis & Loizidou, 2017; Kumari et al., 2024). Similarly, collaborations with NGOs offer a pathway to addressing resource limitations and fostering innovative sustainability strategies, yet such partnerships are frequently hindered by ethical tensions and competing priorities (Esiri et al., 2024; Gupta et al., 2019).

Industries must move beyond market-driven efforts that prioritize short-term economic gains and public relations over genuine environmental stewardship (Sheth & Parvatiyar, 2021; Berry & Rondinelli, 1998). Achieving sustainability necessitates a fundamental shift in corporate practices, embedding ecological principles into core operations and ensuring compliance with enforceable regulatory frameworks.

Businesses must foster equitable partnerships with NGOs, grounded in mutual accountability and aligned objectives, to act as catalysts for addressing global environmental challenges. Such collaborations are instrumental in mitigating misaligned priorities and reactive strategies that hinder sustainability efforts. Advancing meaningful environmental preservation demands interdisciplinary cooperation, strengthened regulatory frameworks, and ethical leadership to navigate the complexities of sustainability and drive systemic progress (Lambin, 2014; Inigo & Albareda, 2019; Winn & Pogutz, 2013).

In recognizing that no company can achieve full responsibility on its own, businesses, NGOs, and governments must work together to redefine sustainability as a shared, actionable goal. Only through such concerted efforts can society address the environmental crises of our time and secure a sustainable future for generations to come.

References

Alsiary, W. (2015). A critical investigation into the barriers and opportunities for environmental management systems 'EMSs' implementation for the delivery of environmental benefits to the Industrial City in Jeddah, KSA (Doctoral dissertation, University of East Anglia).

Amutha, K. (2017). Sustainable chemical management and zero discharges. In Sustainable fibres and textiles (pp. 347-366). Woodhead Publishing.

Andersson, E., & Keskitalo, E. C. H. (2018). Adaptation to climate change? Why business-as-usual remains the logical choice in Swedish forestry. Global Environmental Change, 48, 76-85.

ASI Certification Performance Standard. (2018). RIO TINTO ALUMINIUM (RTA) CANADA P E R F O R M A N C E S T A ND A R D (V2 2 0 1 7) 1 5 M A R C H 2 0 2 1. https://aluminium-stewardship.org/wp-content/uploads/2020/09/ASI-Summary-Audit-Report-RTA-Certificate-1-PS-Rev-3.pdf

Awan, U., Shamim, S., Khan, Z., Zia, N. U., Shariq, S. M., & Khan, M. N. (2021). Big data analytics capability and decision-making: The role of data-driven insight on circular economy performance. Technological Forecasting and Social Change, 168, 120766.

Barr, A., Fafchamps, M., & Owens, T. (2005). The governance of non-governmental organizations in Uganda. World development, 33(4), 657-679.

Baur, D., & Schmitz, H. P. (2012). Corporations and NGOs: When accountability leads to co-optation. Journal of Business Ethics, 106, 9-21.

Berry, M. A., & Rondinelli, D. A. (1998). Proactive corporate environmental management: A new industrial revolution. Academy of Management Perspectives, 12(2), 38-50.

Bishop, J., Kapila, S., Hicks, F., Mitchell, P., & Vorhies, F. (2009). New business models for biodiversity conservation. Journal of Sustainable Forestry, 28(3-5), 285-303.

Boiral, O., & Heras-Saizarbitoria, I. (2017). Managing biodiversity through stakeholder involvement: Why, who, and for what initiatives? Journal of Business Ethics, 140(3), 403-421.

Bosco, M. C. (2017). From Yosemite to a Global Market: How Patagonia, Inc. has Created an Environmentally Sustainable and Socially Equitable Model of Supply-Chain Management.

Brechin, S. R., Fortwangler, C. L., Wilshusen, P. R., & West, P. C. (Eds.). (2003). Contested

nature: promoting international biodiversity with social justice in the twenty-first century. Suny Press.

Bristol-Myers Squibb. (2000). Our environment: Building upon our success. New York, NY: Bristol-Myers Squibb.

Bürklin, N. (2019). Worn Wear: Better than New—How Patagonia's Social Marketing Campaign Enhances Consumers' Responsible Behavior. Social Marketing in Action: Cases from Around the World, 187-201.

Cernea, M. M. (Ed.). (1985). Putting people first. Sociological variables in rural development (p. 430pp).

Chaplin-Kramer, B., & Green, J. (2016). Biodiversity and ecosystem services in environmental profit and loss accounts. Cambridge, UK: University of Cambridge Institute for Sustainability Leadership (CISL).

Chouinard, Y. (2016). Patagonia Tools for Grassroots Activists: Best Practices for Success in the Environmental Movement. Patagonia.

Chouinard, Y., & Stanley, V. (2013). The responsible company: What we've learned from Patagonia's first 40 years. Patagonia.

Clement, R. W. (2005). The lessons from stakeholder theory for US business leaders. Business Horizons, 48(3), 255-264.

Clement, S., Moore, S. A., Lockwood, M., & Morrison, T. H. (2015). A diagnostic framework for biodiversity conservation institutions. Pacific Conservation Biology, 21(4), 277-290.

Coates, D. J., Byrne, M., & Moritz, C. (2018). Genetic diversity and conservation units: dealing with the species-population continuum in the age of genomics. Frontiers in Ecology and Evolution, 6, 165.

Cobbing, M., Campione, C., & Kopp, M. (2017). Outdoor-Branche: Zukunft ohne gefährliche PFC. Retrieved from https://www.greenpeace.de/sites/www.greenpeace.de/files/publications/20160206_greenpeace_factsheet_detox_pfc.pdf

Coglianese, C., & Nash, J. (Eds.). (2001). Regulating from the inside: Can environmental management systems achieve policy goals?. Resources for the Future.

Cohune, L. (2019). Stepping Lightly: A Case Study on Patagonia's Corporate Environmental and Social Responsibility Marketing Strategy.

Collins, M. (1992). Global Corporate Philanthropy-a Gentler form of Marketing?. University of Birmingham Department of Commerce-Publications-WPC.

Cooper, M. (2011). Environmental Management Systems (EMS) and learning in small and medium size establishments (SME): a case study from the beverage industry. Environmental Management, 1, 1-2011.

Costanza, R., & Folke, C. (1997). Valuing ecosystem services with efficiency, fairness and sustainability as goals. Nature's services: Societal dependence on natural ecosystems, 49-70.

Dahan, N. M., Doh, J. P., Oetzel, J., & Yaziji, M. (2010). Corporate-NGO collaboration: Co-creating new business models for developing markets. Long range planning, 43(2-3), 326-342.

Dalrymple, J. (2017, December 5). "The President Stole Your Land": Patagonia Sues Trump After National Monuments Slashed. BuzzFeed News. https://www.buzzfeednews.com/article/jimdalrympleii/patagonia-says-trump-stole-your-land-in-full-page-message?

DBG Group. (2023). Rio Tinto: investing in biodiversity conservation through biodiversity offsetting. Green.earth. https://www.green.earth/net-zero/case-studies/rio-tinto-investing-in-biodiversity-conservation-through-biodiversity-offsetting?

De Groot, R., Fisher, B., Christie, M., Aronson, J., Braat, L., Gowdy, J., ... & Shmelev, S. (2012). Integrating the ecological and economic dimensions in biodiversity and ecosystem service valuation. In The economics of ecosystems and biodiversity: Ecological and economic foundations (pp. 9-40). Routledge.

De Klemm, C., & Shine, C. (1993). Biological diversity conservation and the law: legal mechanisms for conserving species and ecosystems (No. 29). IUCN.

Delmas, M., & Toffel, M. W. (2004). Stakeholders and environmental management practices: an institutional framework. Business strategy and the Environment, 13(4), 209-222.

Earthworks. (2022). Environmental Impacts of Gold Mining. Earthworks; Earthworks. https://earthworks.org/issues/environmental-impacts-of-gold-mining/

Edwards, A. R. (2005). The sustainability revolution: Portrait of a paradigm shift. new society publishers.

Encore. (2024). ENCORE. ENCORE. https://encorenature.org/en/data-and-methodology/assets

Environmental Resources Management. (2013). RE: Disclosure of the Oyu Tolgoi Construction Phase Environment, Social, Health and Safety April 2013 Audit Report by the Independent Environmental and Social Consultant. https://admin.ot.mn/wp-content/uploads/ot/content/page_content/commitments/ESIA/3_IESC_Audit_Report/ESIA_Audit_report_April2013_EN.pdf

Esiri, A. E., Babayeju, O. A., & Ekemezie, I. O. (2024). Implementing sustainable practices in oil and gas operations to minimize environmental footprint.

Faa, M. (2024, October 12). Landmark report uncovers human rights abuses at Rio Tinto gold mine in Bougainville, 35 years after closure - ABC News. ABC News. https://www.abc.net.au/news/2024-10-13/human-rights-abuses-found-at-rio-tinto/104463224

Feng, T. (2024, May 2). Rio Tinto faces biggest test of environmental and social credentials since Juukan Gorge with response to former Panguna mine's impacts. Human Rights Law Centre. https://www.hrlc.org.au/news/2024/05/02/rio-tinto

Fibuch, E., & Van Way III, C. W. (2012). Sustainability: A fiduciary responsibility of senior leaders?. Physician executive, 38(2), 36-42.

Freeman, R. E. (2010). Strategic management: A stakeholder approach. Cambridge university press.

Friedman, M. (1970).'The Social Responsibility Of Business Is To Increase Profits, New York Times.

Gunningham, N. (2007). Incentives to improve farm management: EMS, supply-chains and civil society. Journal of environmental management, 82(3), 302-310.

Gupta, A., Raghunath, A., Gula, L., Rheinbay, L., & Hart, M. (2019). UN Global Compact-Accenture Strategy 2019 CEO Study – The Decade to Deliver: A Call to Business Action.

Hart, S. L. (1995). A natural-resource-based view of the firm. Academy of Management Review, 20(4): 986-1014

Hartman, C. L., Hofman, P. S., & Stafford, E. R. (1999). Partnerships: a path to sustainability. Business Strategy and the Environment, 8(5), 255-266.

Hay, M. E., & Fenical, W. (1996). Chemical ecology and marine biodiversity: insights and products from the sea. Oceanography, 9(1), 10-20.

Heap, S. (1998). NGOs and the private sector: Potential for partnerships?. Oxford: Intrac.

Heede, R. (2014). Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010. Climatic Change, 122(1-2): 229-241.

Helm, D. (2010). Government failure, rent-seeking, and capture: The design of climate change policy. Oxford Review of Economic Policy, 26(2): 182-196.

Henriques, I., & Sadorsky, P. (2004). Environmental policy tools and firm level management practices in Canada. OCED. URL: www. oecd. org/env/consumption-innovation/31685571. pdf(дата обращения: 10.04. 2021).

Hertin, J., Berkhout, F., Wagner, M., & Tyteca, D. (2008). Are EMS environmentally effective? The link between environmental management systems and environmental performance in European companies. Journal of environmental planning and management, 51(2), 259-283.

Hervani, A. A., Helms, M. M., & Sarkis, J. (2005). Performance measurement for green supply chain management. Benchmarking: An international journal, 12(4), 330-353.

Hill, R. C., & Bowen, P. A. (1997). Sustainable construction: principles and a framework for attainment. Construction Management & Economics, 15(3), 223-239

Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the U.S. Chemical industry. Academy of Management Journal, 42(4): 351-371.

Hoffman, A. J. (2001). From heresy to dogma: An institutional history of corporate environmentalism. Stanford, CA: Stanford University Press.

Hoffman, A. J., & Bansal, P. (2012). Retrospective, perspective, and prospective: Introduction to the Oxford handbook on business and the natural environment. In P. Bansal, & A. J. Hoffman (Eds.), The Oxford handbook of business and the natural environment: 3-25. Oxford: Oxford University Press.

Hohnen, P., & Potts, J. (2007). Corporate social responsibility. implementation guide for business.

IBM (2000) Environment and Well Being: Progress Report. IBM, Armonk, NY.

IndustriALL Global Union. (2014). Unsustainable: the ugly truth about Rio Tinto. https://www.industriallunion.org/sites/default/files/uploads/documents/Rio_Tinto_Campaign/a4_rio_tinto_report_final2.pdf

Inigo, E. A., & Albareda, L. (2019). Sustainability oriented innovation dynamics: Levels of dynamic capabilities and their path-dependent and self-reinforcing logics. Technological

Forecasting and Social Change, 139, 334-351.

IPCC. (2014). Climate change 2014: Mitigation of climate change. Contribution of working group III to the fifth assessment report of the Intergovernmental Panel on Climate Change. Cambridge University Press.

IUCN. (2007). Rio Tinto due diligence report Rio Tinto due diligence report 1. https://iucn.org/sites/default/files/import/downloads/rio_tinto_due_diligence_report_08_july_2007.pdf

Jermier, J. M., Forbes, L. C., Benn, S., & Orsato, R. J. 2006. The new corporate environmentalism and green politics. In S. R. Clegg, C. Hardy, T. B. Lawrence, & W. R. Nord (Eds.), The sage handbook of organization studies, 2nd ed.: 618-650. London: Sage

Join The Collective. (2024, March 2). Empowering Communities for Biodiversity Conservation: A Leader's Guide. Jointhecollective.com. https://www.jointhecollective.com/article/empowering-communities-for-biodiversity-conservation-a-leaders-guide/

Johnston, R. L., & Hoffmann, R. (1989). Superdense carbon, C8: supercubane or analog of. gamma.-silicon? Journal of the American Chemical Society, 111(3), 810-819

Jones, S. (2023, April 5). After 150 years of damage to people and planet, Rio Tinto "must be held to account" (commentary). Mongabay Environmental News. https://news.mongabay.com/2023/04/after-150-years-of-damage-to-people-and-planet-rio-tinto-must-be-held-to-account-commentary/

Kagan, R. A., Gunningham, N., & Thornton, D. (2003). Explaining corporate environmental performance: how does regulation matter?. Law & Society Review, 37(1), 51-90.

Karapetrovic, S., & Willborn, W. (1998). Integration of quality and environmental management systems. The TQM Magazine, 10(3), 204-213.

Khan, M. A. (2023). THE RESPONSIBLE ENTREPRENEUR.

Khan, Z. A., Nawaz, I., & Kamran, H. (2024). Ecological Strategic Orientation and Sustainable Development. Human Perspectives of Industry 4.0 Organizations, 170-182.

Khieng, S. (2014). Funding mobilization strategies of nongovernmental organizations in Cambodia. VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations, 25, 1441-1464.

Klein, R. J., Midgley, G., Preston, B. L., Alam, M., Berkhout, F., Dow, K., & Shaw, M. R.

(2015). Adaptation opportunities, constraints, and limits. In Climate change 2014: Impacts, adaptation, and vulnerability. Part A: Global and sectoral aspects. Contribution of working group II to the fifth assessment report of the intergovernmental

Kolk, A. (2000). The Economics of Environmental Management. Prentice Hall/Financial Times.

Kolk, A., & Pinkse, J. 2007. Multinationals' political activities on climate change. Business & Society, 46(2): 201-228.

Kollman, K., & Prakash, A. (2002). EMS-based environmental regimes as club goods: Examining variations in firm-level adoption of ISO 14001 and EMAS in UK, US and Germany. Policy sciences, 35(1), 43-67.

Krause, M. S., Droste, N., & Matzdorf, B. (2021). What makes businesses commit to nature conservation?. Business Strategy and the Environment, 30(2), 741-755.

Krchová, E. (2019). Green communication: case study of the outdoor clothing company Patagonia Inc.

Krishna, A. (2002). Active social capital: Tracing the roots of development and democracy. Columbia University Press.

Kumari, M., Berry, S., & Agrawal, P. R. (2024). Environmental Management System and Sustainable Textile Production. In Dye Pollution from Textile Industry: Challenges and Opportunities for Sustainable Development (pp. 239-261). Singapore: Springer Nature Singapore.

Kumari, M., Berry, S., & Agrawal, P. R. (2024). Environmental Management System and Sustainable Textile Production. In Dye Pollution from Textile Industry: Challenges and Opportunities for Sustainable Development (pp. 239-261). Singapore: Springer Nature Singapore.

Ladle, R. J., & Whittaker, R. J. (Eds.). (2011). Conservation biogeography. John Wiley & Sons.

Lambin, J. J. (2014). Rethinking the market economy. Palgrave Macmillan UK.

Langfield-Smith, K., & Smith, D. (2003). Management control systems and trust in outsourcing relationships. Management accounting research, 14(3), 281-307.

Leader-Williams, N., Adams, W. M., & Smith, R. J. (Eds.). (2011). Trade-offs in conservation: deciding what to save. John Wiley & Sons.

Leighday. (2024, April 3). Rural villagers living near mine in Madagascar take legal action against mining giant Rio Tinto. Leigh Day. https://www.leighday.co.uk/news/news/2024-

news/rural-villagers-living-near-mine-in-madagascar-take-legal-action-against-mining-giant-rio-tinto-after-tests-show-dangerous-levels-of-lead-in-their-bodies/?

Levy, D. L., & Egan, D. 2003. A neo-Gramscian approach to corporate political strategy: Conflict and accommodation in the climate change negotiations. Journal of Management Studies, 40(4): 803-829.

Lewis, D. (1998). Nongovernmental organizations, business, and the management of ambiguity. Nonprofit Management and Leadership, 9(2), 135-152.

Lewis, D. (2010). Non-governmental organizations, definition and history. International encyclopedia of civil society, 41(6), 1056-1062.

Linnenluecke, M. K., Griffiths, A., & Winn, M. I. (2013). Firm and industry adaptation to climate change: a review of climate adaptation studies in the business and management field. Wiley Interdisciplinary Reviews: Climate Change, 4(5), 397-416.

London, T., & Hart, S. L. (2004). Reinventing strategies for emerging markets: beyond the transnational model. Journal of international business studies, 35, 350-370.

Louafi, S., Bazile, D., & Noyer, J. L. (2013). Conserving and cultivating agricultural genetic diversity: transcending established divides. In Cultivating biodiversity to transform agriculture (pp. 181-220). Dordrecht: Springer Netherlands.

Lubatkin, M., & Chatterjee, S. (1994). Extending modern portfolio theory into the domain of corporate diversification: does it apply?. Academy of Management Journal, 37(1), 109-136.

Lundberg, K., Balfors, B., & Folkeson, L. (2009). Framework for environmental performance measurement in a Swedish public sector organization. Journal of Cleaner Production, 17(11), 1017-1024.

Ma, J., Huang, L., Guo, Q., & Zhu, Y. (2024). Sustainability in design: Sustainable fashion design practices and environmental impact using mixed-method analysis. Business Strategy and the Environment, 33(7), 6889-6910.

Macary, J. T., & Gillig, T. K. (2024). Protected Area Politics in the American West: Framing Bears Ears National Monument in Local News. Journalism Practice, 18(5), 1081-1099.

MacDonald, K. I. (2010). Business, biodiversity and new′ fields′ of conservation: the world conservation congress and the renegotiation of organisational order. Conservation and society, 8(4), 256-275.

Marsden, C., & Andriof, J. (1998). Towards an understanding of corporate citizenship and how to influence it. Citizenship Studies, 2(2), 329-352.

Martin-Gill, C., Gaither, J. B., Bigham, B. L., Myers, J. B., Kupas, D. F., & Spaite, D. W. (2016). National prehospital evidence-based guidelines strategy: a summary for EMS stakeholders. Prehospital Emergency Care, 20(2), 175-183.

McCormick, E. (2022, September 15). Patagonia's billionaire owner gives away company to fight climate crisis. The Guardian. https://www.theguardian.com/us-news/2022/sep/14/patagonias-billionaire-owner-gives-away-company-to-fight-climate-crisis-yvon-chouinard

McNeely, J. A., & Scherr, S. J. (2012). Ecoagriculture: strategies to feed the world and save wild biodiversity. Island press.

Millennium Assessment. (2005). Opportunities and Challenges for Business and Industry Ecosystems AND HUMAN WELL-BEING M I L L E N N I U M E C O S Y S T E M A S S E S S M E N T. https://www.millenniumassessment.org/documents/document.353.aspx.pdf

Mining Journal. (2024, July 12). Serbia re-opens door to Rio's giant Jadar lithium project. Mining-Journal.com; Aspermont. https://www.mining-journal.com/base-metals/news-articles/4334599/serbia-door-rios-giant-jadar-lithium-project

Mishra, R. K., Mentha, S. S., Misra, Y., & Dwivedi, N. (2023). Emerging pollutants of severe environmental concern in water and wastewater: A comprehensive review on current developments and future research. Water-Energy Nexus.

Moldovan, D. S. (2015). Process approach of the quality-environment management system according to ISO 9001: 2015 and ISO 14001.

Morrow, D., & Rondinelli, D. (2002). Adopting corporate environmental management systems:: Motivations and results of ISO 14001 and EMAS certification. European management journal, 20(2), 159-171.

Najam, L., & Alam, T. (2023). Occurrence, distribution, and fate of emerging persistent organic pollutants (POPs) in the environment. In Emerging contaminants and plants: interactions, adaptations and remediation technologies (pp. 135-161). Cham: Springer International Publishing.

O'Rourke, D., & Strand, R. (2017). Patagonia: Driving sustainable innovation by embracing

tensions. California Management Review, 60(1), 102-125.

Oglanis, A., & Loizidou, M. (2017). Study of environmental management systems on defence. Global Journal of Environmental Science and Management, 3(1), 103-120.

Panwar, R. (2023). Business and biodiversity: achieving the 2050 vision for biodiversity conservation through transformative business practices. Biodiversity and Conservation, 32(11), 3607-3613.

Patagonia. (2019a). Patagonia Outdoor Clothing & Gear. Patagonia.ca. https://www.patagonia.ca/home/

Patagonia. (2019b, April 9). Hey, How's That Lawsuit Against the President Going? – Patagonia. Www.patagonia.com. https://www.patagonia.com/stories/hey-hows-that-lawsuit-against-the-president-going/story-72248.html

Patro, S. (2024). FASHIONING CHANGE: A Corporate Approach to Sustainable Production in Fast Fashion. 3D: IBA Journal of Management & Leadership, 15(2).

Payne, K. (2018). Doing Well by Doing Good: Is doing good, good for business?.

Petak, W. J. (1981). Environmental management: A system approach. Environmental Management, 5, 213-224.

Pezzoli, K. (1999). Environmental management systems (EMSs) and regulatory innovation. Cal. WL Rev., 36, 335.

Pogutz, S., & Winn, M. (2009). Organizational ecosystem embeddedness and its implications for sustainable fit strategies. In -. -.

Pongtratic, M. (2007). Greening the supply chain: A case analysis of Patagonia. IR/PS CSR, Case, 7-22.

Porter, M. E. (2021). The changing role of business in society. Harvard Business School: Boston, MA, USA.

Porter, M. E., & van der Linde, C. 1995. Toward a new conception of the environment-competitiveness relationship. The Journal of Economic Perspectives, 9(4): 97-118.

Pretty, J., & Smith, D. (2004). Social capital in biodiversity conservation and management. Conservation biology, 18(3), 631-638.

Pretty, J., Guijt, I., Scoones, I., & Thompson, J. (2019). Regenerating agriculture: the Agroecology of low-external input and community-based development. In Policies for a Small Planet (pp. 91-123). Routledge.

Rattalino, F. (2018). Circular advantage anyone? Sustainability-driven innovation and circularity at Patagonia, Inc. Thunderbird International Business Review, 60(5), 747-755

Rawat, U., & Agarwal, N. K. (2015). Biodiversity: Concept, threats and conservation. Environment Conservation Journal, 16(3), 19-28.

RepRisk. (2012). Most Controversial Mining Companies of 2011. http://mb.cision.com/Public/MigratedWpy/103516/9232088/833aba31104d5ba9.pdf

Reuters. (2024, September 17). Rio Tinto launches farming trial in Australia to explore renewable diesel production. Reuters. https://www.reuters.com/sustainability/land-use-biodiversity/rio-tinto-launches-farming-trial-australia-explore-renewable-diesel-production-2024-09-17/

Rhoden, L. (2014). The capacity of NGOs to become sustainable by creating social enterprises. In ICSB World Conference Proceedings (p. 1). International Council for Small Business

Rio Tinto. (2023). Rio Tinto and biodiversity Achieving results on the ground. https://bio-diverse.org/wp-content/uploads/2013/03/2008riotintobidoversitystrategy.pdf

Rio Tinto. (2024a). Biodiversity. Www.riotinto.com. https://www.riotinto.com/en/sustainability/environment/biodiversity

Rio Tinto. (2024b). Rio Tinto invests $16m in Makira Natural Park REDD+ Project in Madagascar. Riotinto.com. https://www.riotinto.com/en/news/releases/2024/rio-tinto-invests-16m-in-makira-natural-park-redd-project-in-madagascar?

Rio Tinto. (n.d.). ICMM Sustainable Development Framework - Rio Tinto mapping against commitments.

Robinet-Duffo, R. (2024). How can brands try to influence social norms? (Doctoral dissertation, Massachusetts Institute of Technology).

Rondinelli, D., & Vastag, G. (2000). Panacea, common sense, or just a label?: The value of ISO 14001 environmental management systems. European Management Journal, 18(5), 499-510.

Royal Dutch/Shell Group (2000) People, Planet and Profits: The Shell Report. Shell International BV, The Hague, The Netherlands.

Russo, M. V., & Fouts, P. A. 1997. A resource-based perspective on corporate environmental performance and profitability. Academy of Management Journal, 40(3): 534-559.

(ICSB).Standards Council of Canada. (2016, July 11). Popular ISO standards adopted as national

standards of Canada. Standards Council of Canada - Conseil canadien des normes. Retrieved October 16, 2022, from https://www.scc.ca/en/news-events/news/2016/popular-iso-standards-adopted-national-standards-canada

Sabatini, J. (2000). In search of ISO. Automotive Manufacturing & Production, 112(3), 96.

Sala, E., & Knowlton, N. (2006). Global marine biodiversity trends. Annu. Rev. Environ. Resour., 31(1), 93-122.

Salim, H. K., Padfield, R., Hansen, S. B., Mohamad, S. E., Yuzir, A., Syayuti, K., ... & Papargyropoulou, E. (2018). Global trends in environmental management system and ISO14001 research. Journal of cleaner production, 170, 645-653.

Salvador López, H. (2023). Creating a more sustainable supplu chain for the clothing industry (Master's thesis, Universitat Politècnica de Catalunya).

Samii, R., Van Wassenhove, L. N., & Bhattacharya, S. (2002). An innovative public–private partnership: new approach to development. World development, 30(6), 991-1008.

Sandbrook, C. (2018). Conservation. In Companion to Environmental Studies (pp. 17-21). Routledge.

Scherr, S. J., & McNeely, J. A. (2008). Biodiversity conservation and agricultural sustainability: towards a new paradigm of 'ecoagriculture'landscapes. Philosophical Transactions of the Royal Society B: Biological Sciences, 363(1491), 477-494.

Schillmann, C. (2020). Patagonia Inc. under a sustainability perspective.

Sheehy, L. P. (2018, March 29). Trump's National Monument Reduction Was Always About Oil, Coal, Gas and Uranium - Patagonia Stories. Patagonia.com. https://www.patagonia.com/stories/it-was-always-about-oil-coal-gas-and-uranium/story-71222.html?

Shehata Nakhil, S. (2024). Modern urgencies creating a market advantage: Sustainable business models in the fashion industry-a Patagonia Case Study.

Sheth, J. N., & Parvatiyar, A. (2021). Sustainable marketing: Market-driving, not market-driven. Journal of macromarketing, 41(1), 150-165.

Singh, K., & Ballabh, V. (Eds.). (1996). Cooperative management of natural resources.

Sira, M. (2024). Potential of Advanced Technologies for Environmental Management Systems. Management Systems in Production Engineering, 32(1), 33-44.

Sissell, K. (2000). ISO 14001-Autos and electronics drive certification. Chemical Week,

162(14), 42-43.

Smith, J. R. (2022, September 22). How Patagonia Surfed Around Death and Taxes. Sierraclub.org. https://www.sierraclub.org/sierra/how-patagonia-surfed-around-death-and-taxes

Stakeholder engagement. (2014). Stakeholder engagement 26 Madagascar: fast facts (2012). https://www.truevaluemetrics.org/DBpdfs/Mining/Madagascar_Rio-Tinto.pdf

Stapleton, P. J., Glover, M. A., & Dvis, P. S. (2001). Environmental management systems: an implementation guide for small & medium sized organizations. NSF.

Starik, M., & Kanashiro, P. (2013). Toward a theory of sustainability management: Uncovering and integrating the nearly obvious. Organization & Environment, 26(1), 7-30.

Sonthithai, P., Suriyo, T., Thiantanawat, A., Watcharasit, P., Ruchirawat, M., & Satayavivad, J. (2016). Perfluorinated chemicals, PFOS and PFOA, enhance the estrogenic effects of 17β-estradiol in T47D human breast cancer cells. Journal of Applied Toxicology, 36(6), 790-801.

Steger D. P. (1991). "Experience with Binational Panel Review in Antidumping and Countervailing Duty Cases under the Canada-U.S.A. Free Trade Agreement", in Proceedings of the Ninth International Trade Law Seminar, Department of Justice Canadadeser

Steger, U. (2000). Environmental management systems: empirical evidence and further perspectives. European management journal, 18(1), 23-37.

Taskforce 2002 (1997), Interim Report: The Two Way Street: Creating and Sustaining Mutually Beneficial Partnerships between Business and Voluntary/Community Organisations. London: Business in the Community (BITC)/National Council of Voluntary Organisations (NCVO).

Temple, H. J., Anstee, S., Ekstrom, J., Pilgrim, J. D., Rabenantoandro, J., Ramanamanjato, J. B., ... & Vincelette, M. (2012). Forecasting the path towards a Net Positive Impact on biodiversity for Rio Tinto QMM. IUCN, Gland, Switzerland. Available at.

Thornton, D., Kagan, R. A., & Gunningham, N. (2003). Sources of corporate environmental performance. California Management Review, 46(1), 127-141.

Ukpoju, E. A., Abatan, A., Obaedo, B. O., Balogun, O. D., & Adegbite, A. O. (2023). Assessing the Effectiveness of Biodiversity Conservation Strategies in Nigeria: A Comprehensive

Review. International Journal of Applied Research in Social Sciences, 5(10), 577-598.

Uphoff, N. (Ed.). (2013). Agroecological innovations: increasing food production with participatory development. Routledge.

Velaphi, S. (2012). NGOs in crisis over lack of funding and staff losses. The New Age, August.

Viravaidya, M., & Hayssen, J. (2001). Strategies to strengthen NGO capacity in resource mobilization through business activities (p. 1). UNAIDS Best Practice Collection: PDA and UNAIDS joint publication.

Wackernagel, M., & Rees, W. E. (1997). Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective. Ecological economics, 20(1), 3-24.

Welch, T. E. (2018). Moving beyond environmental compliance: a handbook for integrating pollution prevention with ISO 14000. CRC Press.

Whitaker, S. (2018). The natural capital protocol. Debating Nature's Value: The Concept of'Natural Capital', 25-38.

Wilson, C. (2017, April 6). Rio Tinto Walks Away from Environmental Responsibility for Bougainville's Panguna Mine. Mongabay Environmental News. https://news.mongabay.com/2017/04/rio-tinto-walks-away-from-environmental-responsibility-for-bougainvilles-panguna-mine/

Wilson, R. C. (2001). Ford spreads the word about its EMS success. Pollution Engineering, 33(6), 32-32.

Winn, M. I., & Pogutz, S. (2013). Business, ecosystems, and biodiversity: New horizons for management research. Organization & Environment, 26(2), 203-229.

Wright, C., & Nyberg, D. (2017). An inconvenient truth: How organizations translate climate change into business as usual. Academy of management journal, 60(5), 1633-1661.

Yuthas, K. J., & Epstein, M. J. (2012). Analyzing sustainability impacts. Strategic Finance.

Zutshi, A., & Sohal, A. S. (2004). Adoption and maintenance of environmental management systems: critical success factors. Management of Environmental Quality: An International

Chapter 4

Toronto Region Conservation Authority Business Pitch

Abstract

This project devises a business pitch framework tailored to the Toronto Region Conservation Authority (TRCA) to strengthen its engagement with potential corporate partners and secure financial support for conservation initiatives. Charitable organizations like TRCA face significant challenges when collaborating with businesses, including limited resources for professional proposals, misaligned objectives, and navigating ethical dilemmas tied to funding sources. By conducting a literature review on successful partnerships between charitable organizations and the private sector, this work identifies best practices and common pitfalls to guide the development of an effective pitch. The pitch integrates strategic elements such as aligning TRCA's conservation goals with corporate priorities, demonstrating measurable outcomes, and leveraging its public trust and expertise. The methodology focuses on crafting both an elevator pitch and a comprehensive pitch deck, supported by insights into storytelling, visual communication, and dual-process theory to balance emotional and data-driven appeals. These elements maximize engagement, highlight mutual benefits, and foster trust with potential partners. Ultimately, this work seeks to empower TRCA to navigate the complexities of charitable organizations -business partnerships, ensure its proposals resonate with corporate decision-makers, and advance meaningful progress in conservation and sustainability. This project contributes to the broader discourse on effective environmental management and collaborative sustainability efforts by addressing proposal crafting, alignment, and communication challenges.

Keywords: Toronto Regional Conservation Authority, business pitch, pitch deck, funding

Introduction

Charitable organizations such as Non-Governmental Organizations (NGOs), Environmental Non-Government Organizations (ENGOs), and not-for-profit organizations face several challenges when seeking financial support from businesses, largely due to differences in priorities and operational approaches. Resource constraints often limit their ability to create polished proposals or build long-term relationships (Viravaidya & Hayssen, 2001). Charitable organizations may also struggle to align their mission with corporate goals, such as reputation enhancement or market expansion, which can make pitches less compelling (Heap, 1998).

While charitable organizations generally enjoy high public trust, partnerships with controversial companies can harm their integrity and deter businesses wary of reputational risks (Baur & Schmitz, 2012). Additionally, unfamiliarity with corporate decision-making processes and return-on-investment expectations can weaken their pitches (Heap, 1998). Ethical dilemmas over accepting funding from industries misaligned with their values and lacking specific, measurable outcomes further complicate their efforts (Pante, 1996). To address these issues, charitable organizations must craft tailored, professional proposals that demonstrate mutual benefits and align with corporate priorities, fostering stronger, more impactful partnerships.

Like many other charitable organizations, the Toronto Region Conservation Authority (TRCA) faces specific challenges when pitching businesses for financial support to fund conservation initiatives. These challenges, such as resource constraints and aligning mission with corporate goals, are unique to TRCA and could potentially hinder the effectiveness of their funding proposals and collaboration efforts with the private sector (Shannon, 2015). The Toronto Region Conservation Authority (TRCA), like many other charitable organizations, faces specific challenges when seeking financial support from businesses to fund its conservation initiatives (Shannon, 2015). These challenges can potentially hinder the effectiveness of TRCA's funding proposals and its ability to build impactful partnerships with the private sector (Shannon, 2015). One significant challenge lies in resource constraints. As a conservation-focused organization, TRCA may have limited funding and staffing to develop highly polished, business-oriented proposals (Shannon, 2015). This limitation can affect its ability to engage in sustained relationship-building with corporate partners and to craft tailored pitches that meet corporate

standards of professionalism and strategic alignment (Shannon, 2015). Such constraints may result in missed opportunities to connect with potential investors effectively.

Another key issue is aligning TRCA's mission with corporate goals. While TRCA's focus on ecological sustainability is critical, it may not always directly align with a corporation's objectives, such as enhancing brand visibility, addressing consumer demands, or achieving measurable returns on investment (Heap, 1998). Without explicitly demonstrating how conservation projects contribute to business priorities like regulatory compliance or corporate social responsibility (CSR) metrics, TRCA's proposals risk failing to resonate with potential corporate partners (Tully, 2004; De Almeida et al., 2018).

Reputation and trust also play a pivotal role. TRCA enjoys high public trust as a conservation authority, but partnering with businesses—particularly those perceived as environmentally harmful—can pose reputational risks (Read & Diehl, 2018). Such associations may undermine TRCA's credibility and public image, potentially deterring businesses from engaging in partnerships that could attract scrutiny or backlash (Baur & Schmitz, 2012). Navigating these reputational challenges requires careful consideration and strategic alignment of values.

TRCA may also face difficulties in understanding and addressing corporate priorities, a crucial aspect that needs to be addressed (Shannon, 2015). Businesses often prioritize clear, short-term outcomes and cost-effective investments, while TRCA's projects frequently emphasize broader, long-term environmental benefits that are harder to quantify (Kourdi, 2015). This disconnect can make TRCA's pitches less compelling to corporate decision-makers seeking immediate, tangible investment returns (Henriques & Sadorsky, 2004).

Ethical dilemmas further complicate TRCA's efforts. As an organization deeply committed to sustainability, TRCA may grapple with the implications of accepting funding from businesses with histories of environmental harm, such as those in the fossil fuel or resource extraction industries. These dilemmas can create internal conflict and complicate negotiations, potentially reducing the appeal of such partnerships for TRCA and the business and even tarnishing TRCA's reputation (Heap, 1998).

Finally, businesses often seek clear, measurable outcomes from their investments, such as carbon emissions reductions or water quality improvements (Hancock, 2004). While TRCA's conservation projects undoubtedly deliver significant environmental benefits, according to Shannon (2015), these outcomes may be difficult to quantify or directly tie to the specific goals of corporate partners. This lack of clearly defined metrics can weaken the appeal of TRCA's proposals to businesses seeking data-driven justifications for their financial support (Coglianese & Nash, 2001).

To overcome these challenges, TRCA must strategically align its conservation projects with corporate objectives, highlighting mutual benefits such as compliance with environmental regulations, enhanced brand reputation, and opportunities for stakeholder engagement. By clearly defining measurable outcomes and leveraging its expertise in environmental management, TRCA can strengthen its proposals and build lasting, impactful partnerships with businesses. These partnerships can advance TRCA's mission and help businesses meet their corporate goals, creating a mutually beneficial dynamic that drives meaningful progress in conservation and sustainability efforts.

The TRCA is one of the thirty-six conservation authorities in Ontario and manages a total of 3,467 square kilometres, with 2,506 on-land and 961 water-based (Conservation Ontario, 2015; Jurisdiction and participating municipalities, 2003). Under the Conservation Authorities Act, the TRCA is a registered charity, and the Act grants authority to the TRCA to manage and study waterways within its jurisdiction (Conservation Authorities Act, 2011). Due to the TRCA's size and complexity, they have adopted a collaborative multi-stakeholder model consisting of residents, government and agency staff, community leaders, NGOs and institutions, and private property owners (Become a Partner, 2021). The TCRA has embraced a systems approach as they have begun to commit to challenges by directing more action toward sustainability. The systems approach embraces the idea that watersheds and areas are interconnected relationships and elements at different scales instead of individual components functioning without external influence (Toronto and Region Conservation Authority, 2014).

The TRCA engages with diverse stakeholders whose expectations can pull it in opposing directions. Shannon (2015) concluded that the most reported area of TRCA stakeholders' work

was their interactions with their stakeholders. Interactions would include communication, understanding, collaboration, participatory process, flexibility, areas of confusion, and business practices (Shannon, 2015). Shannon (2015) also revealed that TRCA stakeholders reported its greatest strength as its legitimacy, specifically its qualities highlighting its knowledge and expertise and efforts to address problems beyond its required responsibilities.

This pitch aims to determine TRCA's weaknesses and strengths and develop a pitch for new potential partners. To create an effective business pitch for the TRCA, a literature review of other NGOs, ENGOs, and not-for-profit is needed to create a common understanding of the characteristics of successful NGO/ENGO and private sector partnerships and potential pitfalls. Although looking at NGOs/ENGOs and not-for-profits of similar size and complexity as the TRCA will be the primary focus, expanding the analysis may provide knowledge on current limitations. Additionally, the pitch will strive to emphasize what each party wants from each other and seek to communicate this clearly and concisely. Within the analysis, specific techniques used by charitable organizations and businesses will be investigated to maximize the pitch's effectiveness.

Business pitches can be categorized into several types, including elevator, short-form, and long-form, each tailored to specific contexts and purposes (Landry, 2020). Elevator pitches, for instance, are concise summaries lasting 30 seconds to two minutes, designed to quickly communicate an organization's value proposition or key offerings (Daly & Davy, 2016). Organizations must develop a clearly defined and readily deployable pitch to articulate their purpose and goals in any situation effectively (Raderstorf, 2019). However, it is equally important to adapt pitches to the specific audience or stakeholder, as customization enhances compatibility and demonstrates how the organization can address the unique needs and priorities of the recipient (Raderstorf, 2019). Marketing research demonstrates that personalized content substantially enhances audience engagement and response rates (Raderstorf, 2019). Similarly, communication studies suggest that customized messaging is more effective in influencing persuasion and fostering a memorable audience experience (Hawkins et al., 2008).

Methodology

Based on the available literature and techniques used in successful funding acquisition, the chapter presents three distinct business pitch formats on behalf of the TRCA. The elevator and slide deck pitches adopt a broader scope, emphasizing the TRCA's overarching contributions to community-based environmental initiatives. In contrast, the executive summary pitch is specifically structured around the Common Tern conservation efforts at Tommy Thompson Park, detailing targeted objectives and strategic actions to address this critical ecological initiative.

Given the time constraints of the elevator pitch, the primary elements are a hook, problem, solution, impact, and call to action. A fundamental approach involves presenting a concise introduction that identifies who you are, the nature of your work, and the impact of your nonprofit organization. It is essential to maintain a balanced delivery, providing enough detail to engage the listener without overwhelming them with excessive information and ensuring the message remains compelling and effective (Woloszyn, 2018). The mission statement can serve as a valuable foundation for crafting an engaging and impactful opening. By extracting its core principles, distilling the key themes, and refining the language, it can be transformed into a concise and compelling statement suitable for general discourse (Woloszyn, 2018). The core of your pitch should not merely convey a message of "this is what we do." Instead, it should articulate, "This is the impact we create for those we serve, and here is how you can contribute to advancing this essential mission" (Woloszyn, 2018).

A pitch deck is a carefully structured presentation to communicate an organization's ideas, initiatives, or projects to potential investors or funders (fundsforNGOs, 2021). As a critical component of the fundraising process, it serves as a strategic tool to articulate the organization's mission and objectives in a way that captivates and engages the audience (fundsforNGOs, 2021). Its primary purpose is to inspire prospective supporters to explore the initiative further and ultimately commit to providing financial or strategic support (fundsforNGOs, 2021). Typically created using platforms such as PowerPoint, Keynote, or Prezi, pitch decks are delivered in-person or virtually to donors, partners, and funding institutions. In the competitive nonprofit sector, where organizations vie for limited resources and donor attention, a well-crafted pitch deck must stand out by capturing interest and fostering a strong connection with its audience (fundsforNGOs, 2021).

Research in nonprofit marketing suggests that personal narratives are often more effective at driving charitable giving than statistical information alone (Small et al., 2007). The Dual Process Theory posits that effective communication engages the emotional, intuitive, and rational analytical systems, highlighting the importance of addressing both dimensions in persuasive messaging (Epstein, 1994). Integrating emotion and data in a presentation maintains audience engagement and enhances relatability through personal stories, making the content more memorable (Ilijev, 2023). Emotional appeals are strong motivators for action, often succeeding where data falls short (Ilijev, 2023). Striking this balance ensures the presentation is compelling and informative, ultimately maximizing its impact (Ilijev, 2023). When examining visuals, The Picture Superiority Effect highlights that visuals are more likely to be remembered than words, emphasizing the importance of selecting impactful images to create a lasting impression on potential donors in nonprofit contexts (Paivio, 1971). Research in visual communication further supports this, demonstrating that including visuals can significantly enhance a presentation's persuasiveness and overall effectiveness (Mayer & Moreno, 2003).

Additionally, storytelling plays a critical role in nonprofit pitches. Studies suggest that narrative techniques often surpass traditional argument-based persuasion in motivating support for charitable and social causes (Green & Brock, 2000). The narrative transportation theory further explains that individuals who become deeply engaged in a story are more likely to be influenced by its content and underlying message (Gerrig, 1993). Together, these elements underscore the importance of integrating visual and narrative strategies to optimize the impact of nonprofit communication.

According to Kawasaki (2004), pitch decks should follow the 10/20/30 rule: ten slides, 20 minutes, and no font smaller than 30. The ten slides outlined in Table 1. represent the fundamental components of an effective pitch deck. The primary objective of the initial presentation is to capture investors' interest and motivate them to pursue further engagement with the proposal (Kawasaki, 2004). Research in marketing and communication demonstrates that a strategically designed call-to-action (CTA) can substantially enhance response rates across digital and traditional media platforms (Vogt et al., 2012). Furthermore, psychological studies suggest that providing clear and specific instructions or requests significantly increases the probability of compliance (Cialdini, 2001).

Regarding presentation structure, research on communication effectiveness emphasizes that presentations with a clear and logical structure are more persuasive and memorable (Minto, 2009). Similarly, studies in educational psychology indicate that well-organized information enhances comprehension and recall (Mayer et al., 2001). Research in visual communication emphasizes that effective visual design is critical in shaping perceptions of an organization's professionalism and credibility (Brumberger, 2003). Furthermore, studies in marketing psychology highlight that elements such as colour, typography, and layout significantly influence emotional responses and decision-making processes (Labrecque et al., 2013).

Kamps and Kamps (2020) highlight a prevalent misconception among entrepreneurs: conflating the creation of a pitch deck with the development of the pitch itself. These processes, however, are fundamentally distinct. The pitch represents the narrative presented to potential investors, addressing the central question, "Why should I invest?" In contrast, the pitch deck is a visual aid designed to support and enhance the narrative but does not constitute the entire pitch. A well-prepared entrepreneur should be able to deliver a compelling presentation to venture capitalists without relying solely on the deck, demonstrating both a thorough command of the material and confidence in their vision (Kamps & Kamps, 2020).

Results

Three different pitches are presented: an elevator pitch, a slide deck pitch, and an executive summary. All are based on general activities of the TRCA, which are applicable in more settings, except the executive summary pitch, which provides a specific topic of Common Tern motoring and the specific needs. A comprehensive analysis informs the subsequent pitches of the available literature on effective pitching strategies, focusing on their applicability to the specific context and TRCA. Please note that all funding information provided is hypothetical and does not reflect the actual financial needs of the TRCA.



Figure 1. The image presents a proposed elevator pitch crafted using insights from the literature review. It incorporates established techniques proven effective in successfully engaging companies or investors, such as strategic alignment with stakeholder priorities, concise value articulation, and persuasive communication methods. The pitch is designed to maximize impact and foster meaningful partnerships by leveraging these evidence-based practices.

The elevator pitch shown in Figure 1. adopts a generalized approach, making it suitable for presentations to various companies. Its opening aligns closely with the TRCA's mission statement, which emphasizes "protecting, conserving, and restoring natural resources while fostering resilient communities" (Toronto and Region Conservation Authority (TRCA), 2024). The pitch maintains consistency with these principles throughout. Instead of narrowing its focus to a specific issue, such as biodiversity loss, it addresses broader themes of community resilience, environmental sustainability, and resource protection. Phrases like “empowering

communities" and "your support drives initiatives" are intentionally impactful, offering a sense of agency without delving into overly detailed descriptions. Importantly, the pitch prioritizes clarity and avoids using scientific jargon or overly complex language, ensuring it remains accessible and engaging for a diverse audience.











Figure 2. The proposed slide deck was designed based on insights from the literature review, emphasizing the importance of clearly articulating the value proposition for corporate partners. The structure incorporates proven techniques for successful business and investor pitches, including strategies to foster emotional engagement and establish a compelling connection with the audience.

Slide Order	Content and Aim
Toronto and Regional Conservation Authority	**Introduction** Begin with a compelling narrative that highlights the personal journey of someone whose life was transformed through your work, illustrating the real-world impact and the valuable lessons learned.

	Convey your message by sharing the story of one individual whose life has been impacted by your work. People often find it challenging to connect with broad or abstract issues, but focusing on a single, relatable story can make your message more compelling and memorable. This approach not only captures your audience's attention but also creates a stronger emotional connection to the larger narrative you aim to share. Make sure you ask permission to use their story prior. The Toronto and Region Conservation Authority (TRCA) undertakes diverse initiatives organized around four strategic pillars: Environmental Protection and Management, Knowledge Economy, Community Prosperity, and Service Excellence. These pillars are central to the TRCA's 2022 Strategic Plan and provide a framework for collaboration. When crafting a tailored pitch, it is essential to select one pillar that aligns closely with the organization's mission. By focusing on this specific pillar, your pitch can highlight relevant themes and demonstrate meaningful impact. To achieve this alignment, the TRCA should conduct thorough research into the organization's needs, priorities, and current engagements. This approach ensures a more impactful and mutually beneficial partnership.
Understanding the Challenge	**The Problem** Zoom out to illustrate the magnitude of the issue and show the broader context. Then, expand the lens: How many people are affected? Who are they? Highlight one aspect of the scale to make the impact tangible. By framing the larger issue through the lens of that initial story, your audience will naturally connect the personal to the universal. Finally, bring the focus full circle by tying the bigger picture back to the original story, reinforcing its relevance and power. Detailed Description: “In the Toronto Regio, specific problem, such declining greenspace and urban expansion, loss of ecosystem degradation and biodiversity loss, balancing growth and environmental protection and many more. This has led to watershed terrestrial ecosystems are under stress due to pollution, habitat destruction, and invasive species and conflicts arise between economic development and the need to protect sensitive environmental areas. The increasing frequency of extreme weather events, such as flooding and heatwaves, puts additional stress on ecosystems and infrastructure, requiring more resources for adaptive measures.” Visuals: Incorporating relevant visuals is crucial for effectively illustrating the challenges faced by the Toronto and Region Conservation Authority (TRCA). For instance, visual representations of flooding, such as floodplain maps or images of impacted areas, can provide compelling evidence of the severity and scope of the issue. These visuals not only enhance understanding but also serve to engage stakeholders by conveying the urgency of addressing such environmental challenges.
How We Make It Happen	**Solution** Possible talking points. Restoration Programs and Initiatives: 1. Ecological Restoration Projects: 2. Ecosystem Compensation Program: 3. Natural Heritage System Strategy: Resource Distribution:

	1. Research and Monitoring: 2. Open Data Accessibility: Partnership Programs: 1. Partners in Project Green (PPG): a. . 2. Growing Healthy Towers 3. McMichael Canadian Art Collection Partnership: Awareness Campaigns: 1. Day of Awareness 2. Moccasin Identifier Project 3. Community Learning Programs: When presenting potential points, it is essential to select two key aspects and focus on how these solutions effectively addressed the original challenges highlighted in the personal testimony. This targeted approach ensures a clear, impactful narrative that emphasizes the organization's ability to implement meaningful and problem-specific interventions. Through these multifaceted efforts, TRCA demonstrates a commitment to restoring and conserving the natural environment, fostering partnerships, and raising public awareness to build resilient and sustainable communities. Visuals: Incorporate impactful visuals that effectively demonstrate your organization's efforts in addressing these challenges, ensuring they resonate with and engage your audience. Thoughtfully selected visuals can enhance understanding, underscore the significance of your work, and appeal to stakeholders by illustrating tangible outcomes and progress.
Measuring Our Impact	**Our Impact** Quantifiable Impact: Images on screen are directed towards restoration Impact: Implemented over 432 restoration, resource management and stewardship projects. Created [x] partnerships with local businesses Success Stories: i.e. Kortright Farm Wetland When selecting a success story to feature in a presentation, it is crucial to ensure that the example aligns with the overarching story of your presentation. This approach reinforces the coherence of your message, demonstrating strategic alignment and a clear connection between the organization's mission and its tangible outcomes. By integrating a success story that resonates with the broader context, you effectively showcase the organization's impact while maintaining a consistent and compelling narrative framework. Visuals: Include relevant visuals to effectively present the data, such as a bar chart depicting education completion rates or a map identifying areas with the greatest need.
Headline: "N/A"	**Competition** When engaging with potential donors or partners, it is essential to emphasize the Toronto and Region Conservation Authority's (TRCA) unique strengths and competitive advantages, rather than focusing on competitors or attempting to undermine them. TRCA's competitive edge lies in its comprehensive, evidence-based approach to conservation, its extensive geographic scope, and its proven ability to address complex environmental challenges in one of Canada's most urbanized regions.

	As a leader in urban conservation, TRCA excels in large-scale restoration projects, such as The Meadoway and wetland enhancements, which not only restore biodiversity but also provide tangible benefits to urban communities. Its expertise in flood management and infrastructure protection highlights its capacity to tackle critical urban challenges while safeguarding both natural ecosystems and human settlements. With jurisdiction over nine watersheds and several municipalities, TRCA leverages its large geographic reach to implement regional-scale projects that deliver impactful and measurable outcomes. In addition to its technical expertise, TRCA integrates cutting-edge research, robust community engagement programs, and innovative partnerships, such as Partners in Project Green, to align environmental initiatives with economic and social benefits. These qualities make TRCA a standout choice for donors and partners seeking impact-driven, scalable, and sustainable solutions. Furthermore, its access to substantial funding sources, such as federal grants, enhances its capacity to innovate and deliver long-term solutions for climate resilience and ecosystem restoration. Investing in TRCA means supporting a trusted leader in urban conservation, one that consistently delivers tangible benefits to both ecosystems and communities. This approach ensures accountability, transparency, and a high return on investment for stakeholders who are committed to building a more resilient and sustainable future. TRCA's ability to transform urban spaces, protect communities from environmental risks, and foster sustainable development makes it a strategic partner for funding initiatives. Emphasize how this can impact their ESG and CSR goals. Visuals: Utilize compelling visuals, such as graphs and charts, to clearly demonstrate how your organization's efforts surpass those of competitors. Highlight metrics that showcase your success, such as the scale of projects completed, measurable environmental outcomes, or community engagement levels. By presenting data-driven comparisons in an accessible and visually engaging format, you can effectively underscore your organization's superior impact, innovative solutions, and commitment to achieving meaningful results. These visuals not only validate your claims but also reinforce your credibility and leadership in the field.
Headline "Our Mission and Vision"	**Mission and Vision** Return to the initial narrative of the specific individual, emphasizing how their story exemplifies the broader impact of the organization's work. By illustrating this connection, you bridge the personal experience with the larger systemic goals, demonstrating how localized efforts contribute to transformative change on a broader scale. This approach not only grounds the vision in relatable human terms but also contextualizes it within the overarching mission, showcasing the far-reaching implications of the organization's initiatives. Visuals: Highlight specific success stories that illustrate the positive change your organization brings, providing a tangible representation of your mission in action.
Current Funding and Support Needs	**Headline "Current Funding and Support Needs"** Securing funding is pivotal in expanding the TRCA's capacity to implement and support additional restoration projects that are critically needed to enhance environmental sustainability and community resilience. These resources allow the TRCA to provide the necessary tools and strategies to restore ecosystems and create a brighter, more sustainable future. It is essential to convey to potential donors and investors that their contributions will directly enable transformative change, positioning them as integral partners in building a sustainable legacy.

	When presenting funding needs, clarity and specificity are crucial. Investors seek transparency regarding the intended allocation of their contributions, the anticipated outcomes, and their role in addressing the overall costs. By offering a detailed breakdown of project objectives, funding requirements, and expected impacts, we ensure alignment with donor expectations and build trust. This approach not only demonstrates accountability but also underscores the tangible difference their investment will make in advancing environmental restoration and long-term sustainability. Visuals: Highlight specific success stories that illustrate the positive change your organization brings, providing a tangible representation of your mission in action.
Headline "Join the Movement: Make Your Impact"	**Call to Action** The opportunity to highlight the vital contributions of investors or partners to advancing your mission cannot be overstated. Their involvement represents a pivotal force in addressing pressing environmental challenges and achieving meaningful impact. By collaborating, we can harness collective expertise, resources, and innovation to drive transformative change. To motivate action, it is essential to convey the tangible benefits of partnership. By joining forces, we can deliver visible outcomes such as rehabilitated wetlands, greener urban spaces, and enhanced biodiversity, all of which contribute to a healthier and more resilient future. Visuals that connect these outcomes to the broader mission—such as a restored floodplain protecting a neighborhood or thriving wildlife habitats—can inspire immediate engagement and demonstrate the direct impact of involvement. Investors and partners are not merely contributors; they are integral to the realization of shared goals. Their support amplifies the reach and effectiveness of conservation efforts, ensuring that these initiatives create lasting benefits for ecosystems and communities alike. Together, we can turn urgent environmental challenges into opportunities for meaningful progress. Visuals: The visuals should be thoughtfully crafted to motivate immediate action by illustrating a direct connection between audience engagement, tangible outcomes, and the overarching mission of the organization. These compelling representations not only highlight the impact of their involvement but also reinforce the broader significance of the organization's goals, fostering a sense of urgency and shared responsibility.
Headline "Toronto Regional Conservation Authority"	**Closer** All your information should be on this slide, including phone number, website, email and any social media platforms frequently used. Within your closing argument, you should empathize that this partnership and/or funding is beneficial for them, telling them especially what they are contributing to, whether research or infrastructure.

Table 1. Based on Kawasaki (2004), a pitch deck template for NGOs detailing information to include and the aim of each slide.



Toronto and Region
Conservation Authority (TRCA)

COMMON TERN MANAGEMENT STRATEGIC PLAN

416.661.6600

101 Exchange Avenue
Vaughan, ON
L4K 5R6

https://trca.ca

TORONTO AND REGION CONSERVATION AUTHORITY (TRCA)

EXECUTIVE SUMMARY

The Toronto and Region Conservation Authority (TRCA) is committed to reversing the decline of Common Terns, a vital species in our region's biodiversity, through innovative conservation strategies. Facing threats from habitat loss and environmental pressures, TRCA's program combines cutting-edge technology, targeted habitat enhancements, and community-driven efforts to boost nesting success and restore ecosystems. This initiative not only protects wildlife but also reinforces TRCA's leadership in sustainable conservation, offering a transformative opportunity for investors to support impactful environmental stewardship.

OBJECTIVES

The TRCA has established clear objectives for its Common Tern conservation initiative. First, the program focuses on supporting Common Tern populations by increasing the number of chicks that survive and grow to adulthood, ensuring the species can thrive in the region. Second, it seeks to optimize habitat management by designing and deploying more effective nesting rafts based on data-driven insights. Third, the initiative strives to build strong stakeholder support through relationships with funding bodies, community groups, and policymakers, ensuring financial and operational sustainability.

KEY STRATEGIES

TRCA's strategy combines advanced technology, targeted habitat solutions, and community engagement to protect Common Terns. Using drones and GPS tracking, we'll gather precise data on tern activity and raft performance, while seasonal surveys will guide impactful habitat improvements. Enhanced raft designs will reduce chick loss and withstand environmental challenges, with deployment expanding to critical ecological areas. Partnerships with academic institutions, NGOs, and corporations will secure funding, research, and volunteer support. Public workshops, outreach campaigns, and storytelling will raise awareness and inspire collective action, delivering measurable conservation outcomes that align with investor goals.



FINANCIAL OVERVIEW

The program requires an initial investment of $150,000 to deliver impactful results. Funding will be strategically allocated: $60,000 to enhance and deploy nesting rafts, $50,000 to implement cutting-edge monitoring tools like drones and GPS systems, $20,000 to engage and educate the community, and $20,000 for contingency and overhead to ensure seamless execution. With $100,000 anticipated from federal and provincial grants, we aim to secure $30,000 from corporate sponsorships and $20,000 from crowdfunding and individual contributions. Your support can drive transformative conservation efforts, positioning your investment at the forefront of innovative environmental stewardship.

BUSINESS MODEL

Success will be strategically evaluated across three key pillars: conservation, community engagement, and operational excellence. Conservation outcomes will focus on measurable gains, including annual increases in nesting pairs, fledgling survival rates, and improved use of nesting rafts. Community impact will be driven by growing volunteer participation, expanding partnerships, and high-impact educational outreach that fosters widespread support for the initiative. Operational success will emphasize efficiency and results with cost-effective raft maintenance, advanced monitoring systems, and tangible reductions in chick loss and habitat degradation. These metrics demonstrate a high return on investment, blending ecological impact with community and operational effectiveness.

CONCLUSION

The TRCA is committed to safeguarding the Common Tern population, a species vital to the biodiversity of the Toronto region. This program offers a unique opportunity to contribute to a transformative conservation effort that combines cutting-edge technology, community engagement, and ecological stewardship. By funding this initiative, you can play a pivotal role in ensuring a thriving future for Common Terns and the ecosystems they inhabit.

Figure 3. *Common Tern Management Strategic Plan Executive Summary* – This document outlines the Toronto and Region Conservation Authority's (TRCA) comprehensive strategy to reverse the decline of Common Terns in the Toronto Region. Key components include objectives, innovative strategies, financial overview, and business model metrics, emphasizing collaborative efforts, cutting-edge monitoring technology, and habitat enhancement to ensure the long-term success of Common Tern populations.

The executive summary shown in Figure 3. adopts a targeted yet broadly accessible approach, aligning with the Toronto and Region Conservation Authority's (TRCA) mission to protect and restore natural resources while fostering sustainable ecosystems. The summary aims to balance high-level goals with specific initiatives, focusing on improving Common Terns nesting success.

The executive summary shown in Figure 3. adopts a more targeted and focused approach, aligning directly with the Toronto and Region Conservation Authority's (TRCA) mission to protect and restore natural resources while fostering sustainable ecosystems. Unlike broader, generalized pitches, this summary concentrates on a specific conservation challenge—the decline of Common Terns—while clearly outlining actionable solutions and measurable outcomes.

The summary opens with a strong and urgent statement emphasizing the need to address habitat loss and environmental pressures, directly situating the Common Tern within the critical ecological context of Tommy Thompson Park. This focused approach ensures alignment with TRCA's broader strategic priorities while offering stakeholders a clear understanding of the program's purpose and localized impact. By including language such as *"cutting-edge technology," "targeted habitat enhancements,"* and *"community-driven efforts,"* the summary conveys the innovative nature, which can appeal to funders and partners seeking tangible conservation outcomes. Ultimately, the executive summary clearly conveys TRCA's overarching environmental stewardship goals for Common Terns.

Discussion

Choosing between a specific and broad business pitch depends on the audience and context, each offering distinct strengths and challenges. Detailed pitches deliver precision and clarity, appealing to technical audiences who value data-driven insights and evidence-based plans or are interested in an explicit initiative. However, providing a detailed approach can

become a disadvantage when the density of information overwhelms non-expert audiences or limits adaptability during diverse presentations, meaning your audience is looking for something broader. Moreover, an overemphasis on specifics risks losing sight of the overarching vision, which is often crucial for engaging broader audiences.

In contrast, broad pitches prioritize accessibility, focusing on goals and long-term impact. Their simplicity makes them ideal for engaging general audiences, such as community members or corporate sponsors, fostering emotional connection and enthusiasm. Yet, the lack of concrete details can diminish confidence among stakeholders who expect measurable outcomes and a clear demonstration of feasibility. This approach may leave some audiences questioning the program's readiness or the potential return on investment.

Ultimately, the effectiveness of a pitch lies in tailoring the approach to the audience's expectations. While detailed pitches suit those requiring in-depth information, broad pitches resonate with diverse groups by offering a compelling vision. A balanced strategy, blending clarity with inspiration, ensures pitches remain engaging while addressing key stakeholder needs.While these proposals explore more traditional business pitches related to specific and more general TRCA activities, there is a wealth of unexplored potential in understanding the role of social media platforms in enhancing the effectiveness of business pitches. Pitching, a contemporary business communication strategy, is a key element in Investor Relations (Balakhonskaya & Balakhonsky, 2021). It is a concise presentation introducing a new project or concept to secure investment or support (Balakhonskaya & Balakhonsky, 2021). This technique fosters engagement, effectively conveys value propositions, and advances business initiatives within competitive markets (Balakhonskaya & Balakhonsky, 2021). An essential aspect often overlooked is the significance of first impressions and their impact on how others perceive us (Edmiston, 2016). These perceptions frequently serve as a foundation for both personal and professional success. In the modern era, many first impressions are increasingly shaped through digital mediums, such as search engine results and social networking platforms (Edmiston, 2016).

Thus, groups like the TRCA have a unique opportunity to take advantage of this understanding as they are founded on creating positive change, and it becomes more readily known throughout the community, attracting companies looking to improve their public view.

Furthermore, the identified opportunity to leverage social media for business pitching remains largely unexplored. However, a crucial question exists regarding how to balance selling and informing on social media. It is important to remember that finding this balance should not result in overpitching, as it can potentially disengage users. Instead, a strategic approach that provides valuable information while promoting the organization's mission and goals is key. Therefore, future research must examine how social media can attract and engage potential funders or partners. This topic has not been extensively explored in business pitching.

Additionally, digitalizing packed information increases communication speed, involving more participants who can exchange information and play a communicative role (Balakhonskaya & Balakhonsky, 2021). Future research could also address how conservation agencies can navigate the challenges of maintaining authenticity and trust online while maximizing social media's advantages in building strategic, long-term partnerships. Such insights would contribute to advancing contemporary pitching practices and provide a robust framework for integrating digital strategies into investor and stakeholder relations. This need is increasingly urgent in today's digital age.

References

Balakhonskaya, L. V., & Balakhonsky, V. V. (2021, April). Pitching as a communication technology and pitch as a tool for investor relations in the digital environment. In 2021 Communication Strategies in Digital Society Seminar (ComSDS) (pp. 166-172). IEEE.

Baur, D., & Schmitz, H. P. (2012). Corporations and NGOs: When accountability leads to co-optation. Journal of Business Ethics, 106, 9-21.

Become a Partner. Toronto and Region Conservation Authority (TRCA). (2021, November 1). https://trca.ca/conservation/sustainable-neighbourhoods/partners/

Brumberger, E. R. (2003). The rhetoric of typography: The persona of typeface and text. Technical communication, 50(2), 206-223.Cialdini, R. B. (2001). The science of persuasion. Scientific American, 284(2), 76-81.

Coglianese, C., & Nash, J. (Eds.). (2001). Regulating from the inside: Can environmental management systems achieve policy goals?. Resources for the Future.

Conservation Authorities Act, 2011, S.O. 1990, c. 27.

Conservation Ontario. (2015). About Us. Retrieved 7/17/2015, from http://www.conservation-ontario.on.ca/about-us/conservation-ontario

Daly, P., & Davy, D. (2016). Structural, linguistic and rhetorical features of the entrepreneurial pitch: Lessons from Dragons' Den. Journal of Management Development, 35(1), 120-132.

De Almeida, R. R., Kulesza, U., Treude, C., & Lima, A. H. G. (2018, September). Aligning technical debt prioritization with business objectives: A multiple-case study. In 2018 IEEE International Conference on Software Maintenance and Evolution (ICSME) (pp. 655-664). IEEE. Dimitrova, M. Fundraising, Grant Writing, Capital and Endowment Campaigns in Creative Industries.

Edmiston, D. (2016). Developing the perfect pitch: Creating a positive first impression through social media. Marketing Education Review, 26(1), 3-7.

Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. American psychologist, 49(8), 709.

fundsforNGOs. (2021, June 21). What is a Pitch Deck and Why it is important for NGOs? – fundsforNGOs. FundsforNGOs - Grants and Resources for Sustainability. https://www2.fundsforngos.org/featured/what-is-a-pitch-deck-and-why-it-is-important-

for-ngos/

Gerrig, R. J. (1993). Experiencing narrative worlds: On the psychological activities of reading. Yale University Press.

Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. Journal of personality and social psychology, 79(5), 701.

Hancock, J. (Ed.). (2004). Investing in corporate social responsibility: a guide to best practice, business planning & the UK's leading companies. Kogan Page Publishers.

Hawkins, R. P., Kreuter, M., Resnicow, K., Fishbein, M., & Dijkstra, A. (2008). Understanding tailoring in communicating about health. Health education research, 23(3), 454-466.

Heap, S. (1998). NGOs and the private sector: Potential for partnerships?. Oxford: Intrac.

Henriques, I., & Sadorsky, P. (2004). Environmental policy tools and firm level management practices in Canada. OCED. URL: www. oecd. org/env/consumption-innovation/31685571. pdf(дата обращения: 10.04. 2021).

Ilijev, V. (2023, February 6). Investor Ready Nonprofit Pitch Deck | Guide, Examples & Template | Nov 2024 Update - Viktori. Viktori. https://viktori.co/nonprofit-pitch-deck-for-fundraising/

Jurisdiction and participating municipalities. Toronto and Region Conservation Authority (TRCA). (2023, April 20). https://trca.ca/about/jurisdiction-participating-municipalities/

Kamps, H. J., & Kamps, H. J. (2020). Pitch Deck Design: Design is important—but content is king. Pitch Perfect: Raising Capital for Your Startup, 15-20.

Kawasaki, G. (2004). The art of the start: The time-tested, battle-hardened guide for anyone starting anything. Penguin.

Kourdi, J. (2015). Business strategy: a guide to effective decision-making. The Economist.

Labrecque, L. I., Patrick, V. M., & Milne, G. R. (2013). The marketers' prismatic palette: A review of color research and future directions. Psychology & Marketing, 30(2), 187-202.

Landry, L. (2020, August 27). How to Pitch a Business Idea | HBS Online. Business Insights – Blog. https://online.hbs.edu/blog/post/how-to-pitch-a-business-idea

Mayer, R. E., Heiser, J., & Lonn, S. (2001). Cognitive constraints on multimedia learning: When presenting more material results in less understanding. Journal of educational psychology, 93(1), 187.

Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia

learning. Educational psychologist, 38(1), 43-52.

Minto, B. (2009). The pyramid principle: logic in writing and thinking. Pearson Education.

Paivio, A. (1971). Imagery and language. In Imagery (pp. 7-32). Academic Press.

Pante, M. (1996), 'Social Partnerships, Sustainable Social Policy and Community Capital', Sustainable Social Policy and Community Capital. Ottawa: Caledon Institute, 18-19 June.

Raderstorf, T. (2019). Building and Pitching Your Plan. Evidence-Based Leadership, Innovation and Entrepreneurship in Nursing and Healthcare: A Practical Guide to Success.

Read, K., & Diehl, C. (2018). The emergence and growth of strategic partnerships between NGOs and corporates: Balancing risks and leveraging communications. In Communicating Causes (pp. 71-84). Routledge.

Shannon, A. Z. (2015). Using stakeholder perceptions to inform organizational actions: A case study of the Toronto and Region Conservation Authority (Master's thesis, University of Waterloo).

Small, D. A., Loewenstein, G., & Slovic, P. (2013). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims. In The feeling of risk (pp. 51-68). Routledge.

Toronto and Region Conservation Authority (2014). The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority

Toronto and Region Conservation Authority (TRCA). (2024). About Toronto and Region Conservation Authority (TRCA) | Professional Access Into Employment. Paietraining.ca. https://paietraining.ca/page/about-toronto-and-region-conservation-authority-trca

Tully, S. R. (2004). Corporate-NGO partnerships and the regulatory impact of the Energy and Biodiversity Initiative. Non-St. Actors & Int'l L., 4, 111.

Viravaidya, M., & Hayssen, J. (2001). Strategies to strengthen NGO capacity in resource mobilization through business activities (p. 1). UNAIDS Best Practice Collection: PDA and UNAIDS joint publication.

Vogt, W. P., Gardner, D. C., & Haeffele, L. M. (2012). When to use what research design. Guilford Press.

Woloszyn, J. (2018, July 18). How to Create an Elevator Pitch For Nonprofits. Classy. https://www.classy.org/blog/elevator-pitch-for-nonprofits/