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1 **Leadership and Management Influences on the Outcome of Wildlife Reintroduction**
 2 **Programs: Findings from the Sea Eagle Recovery Project**

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4
 5 **ABSTRACT**

6 Wildlife reintroductions and translocations are statistically unlikely to succeed.
 7 Nevertheless, they remain a critical part of conservation because they are the only way to
 8 actively restore a species into a habitat from which it has been extirpated. Past efforts to
 9 improve these practices have attributed the low success rate to failures in the biological
 10 knowledge (e.g. ignorance of social behavior, poor release site selection), or to the
 11 inherent challenges of reinstating a species into an area where threats have already driven
 12 it to local extinction. Such research presumes that the only way to improve reintroduction
 13 outcomes is through improved biological knowledge. This emphasis on biological
 14 solutions may have caused researchers to overlook the potential influence of other factors
 15 on reintroduction outcomes. I employed a grounded theory approach to study the
 16 leadership and management of a successful reintroduction program (the Sea Eagle
 17 Recovery Project in Scotland, UK) and identify four critical managerial elements that I
 18 theorize may have contributed to the successful outcome of this 50-year reintroduction.
 19 These elements are:

- 20 1. *Leadership & Management*: Small, dedicated team of accessible experts who
 21 provided strong political and scientific advocacy for the project
 22 2. *Hierarchy & Autonomy*: Hierarchical management structure that nevertheless
 23 permitted high individual autonomy
 24 3. *Goals & Evaluation*: Formalized goal-setting and regular, critical evaluation of the
 25 project's progress toward those goals
 26 4. *Adaptive Public Relations*: Adaptive outreach campaigns that are open, transparent,
 27 inclusive (esp. linguistically), and culturally relevant.

28 **KEYWORDS** conservation leadership, reintroduction, white-tailed sea eagle

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29 INTRODUCTION

30 Wildlife reintroductions are complex, expensive, and time-consuming. Worse,
31 they are statistically unlikely to succeed, as repeated audits have shown (Clark &
32 Westrum 1989; Griffith et al. 1989; Kleiman 1989; Fischer & Lindemeyer 2000; Reading
33 et al. 2002; Lipsey & Child 2007; Seddon et al. 2007). They are also the *only* way to
34 restore an extirpated species to its prior home in cases where natural recolonization is
35 impossible or unlikely, and for this reason, reintroductions remain an essential tool in
36 conservation (Tear et al. 1993; Ostermann et al. 2000).

37

38 **Understanding Success and Failure in Wildlife Reintroductions**

39 Much of the previous literature has attributed failures in reintroduction to
40 deficiencies in the biological knowledge. Such theories presume that reintroduction
41 outcomes are constrained only by the availability of biological data (e.g. Armstrong &
42 Seddon 2007). If this were the case, then reintroductions of data-rich species (e.g. wolves,
43 lions) would be reliably more successful; they are not.

44 Some fault may lie in the inherent fragility of reintroduction procedures: the
45 combined vulnerabilities of (i) small founding populations (Pimm et al. 1988; Pimm
46 1989); (ii) complex extinction causes (e.g. the passenger pigeon, which suffered
47 simultaneously from overhunting, habitat loss, fragmentation of food landscapes, and lost
48 cohesion of social groups [Bucher 1992]); and (iii) potential loss of behavioral or genetic
49 integrity due to captive breeding (Jule et al. 2008) may prove insuperable in the re-
50 establishment of an extirpated population.

51 Reintroduction is also relatively novel within the broader context of conservation—
52 only within the past 40 years has it become a commonly-used scientific tool, and has had
53 little time to form a body of knowledge about best practices (Kleiman et al. 1994;
54 Sarrazin and Barbault 1996; Stanley Price & Soorae 2003; Seddon et al. 2007).

55 It should come as no surprise, therefore, that most reintroductions fail. Although
56 supplementary translocations (such as the overwhelmingly successful [94%] grazing
57 mammal translocations of South Africa, documented in van Houtan et al. 2009) may
58 flourish, reintroductions are another matter. Estimated rates of success vary between
59 reviewers (46% - Griffith et al. 1989; 11% - Beck et al. 1994; 20% for restoration

60 projects overall – Lockwood & Pimm 1999; 26% - Fischer & Lindemeyer 2000; 53% for
 61 wild-born carnivores, 32% for captive-born – Jule et al. 2008), but the pattern remains
 62 clear: in recreating an absent population, some efforts succeed; *most* do not.

63

64 **Understanding Success and Failure in Organizations**

65 Organizations, likewise, may succeed but often fail. This failure can be linked
 66 strongly to the organization's internal activity: the set of behaviors and values that
 67 establish professional norms and direct operations within an institution. This set of
 68 behaviors and values has been termed organizational culture, and has been under study
 69 since the early 1980s in the business and management research fields (see: Schein, 1984).

70 An organization's culture manifests in every aspect of the institution, including
 71 such structures as administrative hierarchies, staff competencies and experience, financial
 72 resources, and management practices (Schein, 1990; Schein, 2010; Lunenburg, 2011).
 73 Expectations about each of these inform and restrict decision-making within an
 74 organization, and in doing so, culture becomes directly influential on outcomes (Barney,
 75 1986; Schein, 1990; Schein, 2010). This is a complex explanation for an intuitive
 76 phenomenon: that a well-run organization will perform better than a poorly-run one.

77 Despite conservation's origins in scientific practice, it is fundamentally an applied
 78 field, and as such, relies on practice and operation to achieve desired outcomes. In this
 79 sense, a conservation initiative, entity, or project does not differ from other organizations,
 80 and is just as subject to the influence and impact of human and organizational factors. In
 81 fact, organizational experience, preference, and priorities direct every decision about
 82 reintroduction from the first recognition of the loss of a species. Biases towards
 83 charismatic species, cultural preferences, the geopolitical context of reintroduction, the
 84 depth of existing scientific knowledge, and questions of physical accessibility all shape
 85 projects in their planning phases. Organizational structures, staff selection and
 86 experience, leadership and management styles, funding availability, and cultural identity
 87 all shape projects throughout their working phases. Professional status, disciplinary
 88 culture, publication bias, and funding availability or obligations all influence projects in
 89 their monitoring phrases. So why have these areas gone largely unstudied?

90

91 **Understanding Wildlife Reintroduction Outcome as Organizational Performance**

92 Past reviews of reintroduction outcomes have focused almost exclusively on
 93 identifying broad, biological prerequisites for success (Morris 1986; Kleiman 1989, Wolf
 94 et al. 1996; Sarrazin & Barbault 1996; Wolf et al. 1998; Fischer & Lindemayer 2000;
 95 Stanley-Price & Soorae 2003), ignoring almost completely the potential influence of
 96 sociological and organizational (i.e. human dimensions) factors (O'Rourke 2014).

97 Leadership and day-to-day management, for example, form the foundation of any
 98 reintroduction program. Yet, only a few places discuss them in the literature, and in each
 99 of these, only briefly. In the early reintroduction literature, only Morris (1986) and
 100 Kleiman (1989) acknowledge the necessity of engaging with the public and obtaining the
 101 governmental support. As late as 1996, researchers continued to downplay the potential
 102 impacts of these non-biological factors, arguing instead that demography, genetics, and
 103 ecology were the truly decisive influences (Sarrazin & Barbault 1996).

104 Reading & Miller's (1994) chapter expressed some interest in the topic:
 105 "Endangered species recovery programs could be greatly improved by addressing their
 106 professional and organizational weakness." (p. 73), and a brief (but skeptical)
 107 acknowledgment exists in Wolf et al.'s (1996) paper: "Although management techniques
 108 are not applied uniformly among translocation programs... little relevant data exist to
 109 indicate whether this was an important issue." (p. 1150).

110 Reading et al. returned to the topic in 1997, but the researchers used a mailed
 111 questionnaire approach that provided data too coarse to link specific aspects of leadership
 112 and management (in their terms: 'valuational and organizational considerations') to
 113 program outcomes. Miller touched momentarily on the issue again in 1999: "A well-
 114 trained and dedicated staff with the appropriate expertise is crucial to program success...
 115 For that reason, careful attention to the organizational structure of the decision-making
 116 body is crucial to maintaining an efficient and effective program," (p.65) but failed to
 117 follow through with any more thorough examination of what this might mean.

118 And most recently (and most thoroughly), a review by Post & Pandav (2013) of
 119 tiger reserves in India highlighted the criticality of leadership, finding that "the presence
 120 of 'conservation champions' can dramatically affect the performance of individual
 121 reserves." Beyond these brief mentions, the literature ends.

122 This is an unfortunate and unacceptable shortfall in our scientific knowledge. A
 123 limited understanding of human and organizational factors in reintroduction results in a
 124 limited ability to improve our outcomes. The objective of my study, therefore, is to
 125 augment the findings of previous researchers with an in-depth exploration of the impact
 126 of human and organizational factors on the success of a high-risk reintroduction program:
 127 the Sea Eagle Recovery Project, which took place from 1975 – 2012 in Scotland.

128

129 **A Brief History of Sea Eagles**

130 The white-tailed sea eagle (*Haaliaeetus*
 131 *albicilla*), in the family *Accipitridae*, is the largest
 132 bird of prey in the United Kingdom. It possesses a
 133 wingspan over 2 m, and an average male/female
 134 weight of 4.5/6 kg, with females significantly
 135 larger than males (Love 1983; Royal Society for
 136 the Protection of Birds 2006). Adults of the
 137 species are brown with pale heads and white,
 138 wedge-shaped tails, yellow beaks, yellow un-
 139 feathered legs, and golden eyes (Love 1983;

140 RSPB 2006). The white-tailed sea eagle's
 141 (hereafter, "sea eagle") range extends over most

142 of northern Europe and Asia, with roaming birds observed as far south as the
 143 Mediterranean (RSPB 2006). The eagles further have a long history in Scotland, with
 144 referent placenames dated as early as 500 CE (Evans et al. 2012) and representations
 145 appearing in Pictish carvings predating the Stone Age (Love 1983). The diet of the eagle
 146 consists primarily of fish and small mammals, with occasional predation of small birds
 147 and scavenging of carrion.

148 *Extinction.* White-tailed sea eagles (*Haaliaeetus albicilla*) were large, bold birds
 149 that quickly habituated to humans, dined on managed grouse, and preyed on lambs; they
 150 were therefore intolerable pests to British gamekeepers and crofters of the 19th century
 151 (Love 1979; Love 1983; Lister-Kaye 1994; RSPB 2005; SNH 2010). Further, sea eagle
 152 specimens became a favorite of Victorian egg collectors, and traders regularly raided the



Figure 1. A sea eagle on its nest, in captivity (2008)

153 birds' nests (Love 1983). The sea eagle thereby began to decline in the 19th century, and
 154 was extinct in Britain by the early 20th. The last wild pair were on the Isle of Skye in
 155 1916, and the last wild individual was shot in Shetland in 1918 (Baxter & Rintoul 1953;
 156 Love 1983; Mudge et al. 1996; Bainbridge et al. 2002).

157 When the sea eagle reintroduction began in 1975, the project faced major
 158 challenges that put it at high risk for a lack of success:

159 *Ongoing Land Use Conflict.* Significant changes had taken place in the British
 160 economy, wildlife laws, and gamekeeping practices since sea eagles were extirpated in
 161 1918, suggesting that the original threats to the birds had likely diminished so far as to be
 162 negligible by the mid-1970s. However, contemporaneous studies of the golden eagle
 163 (*Aquila chrysaetos*) revealed ongoing challenges with persecution, habitat loss, and
 164 disturbance (e.g. Newton 1972).

165 *Experimental Failure.* Two pilot reintroduction attempts were made in 1959 and
 166 1968 (Sandeman 1965; Dennis 1969; Green et al. 1996), but by 1975, when the official
 167 reintroduction began, not a single bird had reestablished in Scotland.

168 *Limited Biological Knowledge.* In 1975, no body of knowledge about the process
 169 of reintroduction existed upon which project members might have based their work.
 170 Although the eagle was plentiful in Norway, scientists knew little about its ecology in
 171 Scotland (Love 1979). Bird reintroductions are, as a whole, less successful than
 172 mammalian projects (Wolf et al. 1996), and carnivores less than omnivores (Wolf et al.
 173 1998). Raptor reintroductions are thus doubly cursed, and although overrepresented as a
 174 percentage of bird reintroductions (Seddon et al. 2005), are more likely to fail.

175 *Lack of Government Support.* The Wildlife & Countryside Act of 1981
 176 established clear guidelines for the importation and release of native species into the
 177 United Kingdom, but prior limitations set by the Animals (Restriction of Importation)
 178 Act of 1964 had already established a precedent of strictly avoiding the importation of
 179 *any* animal to the country. Morris (1986) notes that even after the 1981 Act granted
 180 greater license, a strong fear of unintentionally harmful introductions persisted. And since
 181 such a large-scale bird project had no precedent at that time in Britain, support for such a
 182 risky – if pioneering – project was limited, hard-won and tentative. (Tingay & Katzner
 183 2012).

184 Despite these challenges, the project proceeded, and from 1975 onward, took
185 steps to successfully restore the sea eagle to its historic range throughout Scotland
186 (Whitfield et al. 2009). In the project presented here, I explore some of the ways in which
187 human and organizational factors (specifically: leadership and management) of the
188 recovery project may have contributed to this success.

189 **METHODS**

190 I drew on data from multiple sources – interviews, observations, archival records,
191 publicity documents, scientific publications, internal reports, and multimedia materials –
192 as well as two traditions of inquiry: the case study and grounded theory methods. This
193 approach relied on interviews with human subjects, and was approved by the Texas
194 A&M University Institutional Review Board under IRB Protocol #20080131.

195 **Selection of Focal Project**

196 I chose the Sea Eagle Recovery Project because of its length (>40 years), status at the
197 time of research (ongoing), success, and relative celebrity within the country (SNH 1995;
198 RSPB 2006; BBC 2008; Evans et al. 2009). Of further benefit was the fact that the
199 reintroduction took place in four discrete phases: a pilot study in Fair Isle, the first phase
200 in the Inner Hebrides, the second in Western Scotland, and the third in Eastern Scotland.
201 These discrete phases allowed me to compare shifts in leadership and management across
202 the length of the project, providing a natural experiment that gave insight into how
203 different approaches might have influenced outcomes.

204 **Data Collection**

205 I conducted face-to-face, in-depth, semi-structured confidential interviews with
206 verbally consenting, voluntary participants who had been full-time project employees for
207 at least three months during any phase of the reintroduction program. I asked about
208 individual interviewee's experience with sea eagles during, before, and after the
209 reintroduction, as well as the organizational structure of the project during the
210 individual's time of employment, and the overall experience of working with the project
211 (for a full list of guiding questions, see Appendix 1). I also asked interviewees to
212 recommend other potential interviewees (the "snowball method"; Goodman 1961).

213 In interviews, I made use of a modified logic model framework, based in the
214 Gugiu & Rodriguez-Campos semi-structured interview protocol (2007), to guide the

215 interview process. This method consisted of a series of introductory questions which ask
216 basic information about the interviewee, followed by a series of open-ended questions
217 intended to encourage the speaker to speak freely about their experiences. I set no time
218 limit for the interviews. This approach allowed me to collect detailed accounts of the
219 program and work in-depth with my interviewees to gain an understanding of
220 organizational culture (Lincoln & Guba 1985; Erlandson 1993).

221 I scheduled interviews with 13 interviewees in various locations (convenient to
222 the interviewee) across Scotland, but continued with only 11 interviewees; after further
223 investigation, I eliminated one interviewee who turned out to have worked for less than
224 three months on the reintroduction and therefore did not meet the criteria for inclusion,
225 and one interviewee's recording was lost. I therefore conducted 17 total interviews, but
226 15 of these were ultimately used. I also conducted follow-up interviews via Skype with
227 four of the six most experienced interviewees (those who had worked through at least two
228 phases of the reintroduction); two were excluded because of schedule unavailability.

229 In addition to interviews, I gathered documents including but not limited to public
230 outreach papers and pamphlets, children's education books, curricular materials, internal
231 and external newsletters, newspaper and internet articles, blog posts, books, informational
232 and recruitment brochures, DVDs, recorded TV programs, community flyers, and other
233 informational packets either presented by or related to the project. I collected these items
234 from archival collections at the Royal Society for the Protection of Birds (RSPB)
235 Scotland headquarters, the Scottish Natural Heritage (SNH) offices, a variety of wildlife
236 centers located around the country, and from private collections.

237 **Data Analysis**

238 *Manual Typology*

239 Extracting useful information from qualitative data first necessitates organizing the data
240 into discrete groups or categories (Caracelli & Greene 1993; Stake 1995; Creswell 2007).
241 I began by grouping my interviews, documents, and notes into broad, meaningful types
242 (e.g. children's books; brochures; journal articles; scientist interviews; non-academic
243 texts). I then read and analyzed each document, identifying and highlighting ("tagging")
244 recurrent concepts to create a preliminary data chart ("typology") (Caracelli & Greene
245 1993; Creswell 2007). As I read, I tagged discrete and overlapping passages, words, or

246 phrases that described a particular thought, idea, or concept. This process matches the
 247 overall approach that both Stake (1995) and Creswell (2007) suggest for conducting
 248 either grounded theory or traditional case study research.

249 My tagged and highlighted passages resulted in an initial list of over 57 discrete
 250 ideas, concepts, and experiences; I then grouped these discrete experiences into a shorter
 251 list of eight categories (see: Experience Type Codes, Table 1). I then tagged discrete,
 252 descriptive characteristics within each Type (e.g. 'It was really quite helpful having our
 253 supervisor around a lot.' would have been categorized as Contact with
 254 Supervisor/Frequent/Positive; see Experience Characteristic Codes, Table 1).

255 Once I completed this process for all of my collected documents, interviews,
 256 multimedia, and texts, I created a final data chart encompassing all the concepts, their
 257 characteristics, and the strength of their recurrence across multiple data sources. The
 258 typology I extracted from that final data chart is presented in Table 1.

259

260 *Table 1. Management Themes and Characteristics of the Sea Eagle Recovery Project*

Experience Type (ET) Codes	Descriptive Experience Characteristic (EC) Codes
Contact with Supervisor (CS-)	Frequent (F) Infrequent (I) Positive (+) Negative (\$) Neutral (N)
Position/Job Duties (JD-)	Autonomous (A) Non-autonomous (Na) Primary (P) Secondary (S) - <i>Fieldwork (Fw)</i> - <i>Administrative work (Aw)</i> - <i>Public Relations work (PRw)</i> - <i>Supervision of Others (So)</i>
Relationship with Coworkers (RC-)	Shared Responsibilities (SR) Divided Responsibilities (DR) Egalitarian (E) Hierarchical (H)
Goal-Setting and Evaluation Process (GSE-)	Proximate (P) Ultimate (U) - <i>Formal (L) Informal/Casual(C)</i> - <i>Beneficial (+) Unhelpful/Costly (\$) Neutral (N)</i> - <i>Frequent (F) Infrequent (I)</i>
Contact with Public (CP-)	Positive (+) Negative (\$) Neutral (N) Frequent (F) Infrequent (I)
Public/Media Relations (PR-)	Internally Generated (Y) Externally Generated (X) - <i>Positive (+) Negative (\$) Neutral (N)</i> - <i>Frequent (F) Infrequent (I)</i>
Program Progress (PP-)	Good (G) Poor/Bad (B) Neutral (N)
Program Performance (PO-)	Good (G) Poor/Bad (B) Neutral (N)

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Definitions of Select Terms

Autonomy refers to the ability of team members to complete their work independently, either while in the office or in the field.

Hierarchy refers to the assignation of responsibilities and privileges to team members according to a graded or ranked system.

Accountability refers to the ability or expectation of practitioners to explain or justify their actions through formal or informal evaluation or review. It is reflected in the determination of goals, followed by the evaluation of the completion of those goals.

Evaluation refers to the complete process of professional assessment, which may be undertaken by either internal or external agents of the program.

Public Relations/Outreach refers to the effort made by the project to interact with, access, educate, or include members of the public during the reintroduction process.

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Digital Typology

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After the construction of a manual typology, I imported all interviews and digital

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documents into NVivo 10, a qualitative analysis software program, and then used the

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manual typology as a guideline for inductive digital analysis. This approach afforded me

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the opportunity to code more precisely and to explore the data with greater nuance,

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including queries and cross-tabulations of thematic overlap (Auld 2007; NVivo 2013).

280

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RESULTS

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Interviews averaged 45 minutes, and all took place at times and locations of the

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interviewee's choice.

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Interviewee Demographics

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Nine of eleven interviewees were men and all lived in Scotland [average length at current

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residence: 11 years]). Most were currently employed by the Royal Society for the

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Protection of Birds (n=4) or Scottish Natural Heritage (n=3); one interviewee was

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employed by Forestry Commission Scotland; and the remainder (n=3) were self-

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employed. During their work on the reintroduction, six of the 11 interviewees had been

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employed by the Royal Society for the Protection of Birds, while the remainder (n=5) had

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been employed by Scottish Natural Heritage. Six interviewees had worked through more

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than one phase of the reintroduction; four had served during the earliest phases of the

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project (1968 – 1990) and ten had served during the latter phases of the project (1990

294

onward).

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Interview Summary

297 Interviewees referenced a number of recurrent human and organizational issues that may
 298 have been influential to project outcomes, comprising four overall experience *themes*,
 299 which are highlighted below:

Theme 1: Leadership/Management, Hierarchy & Autonomy

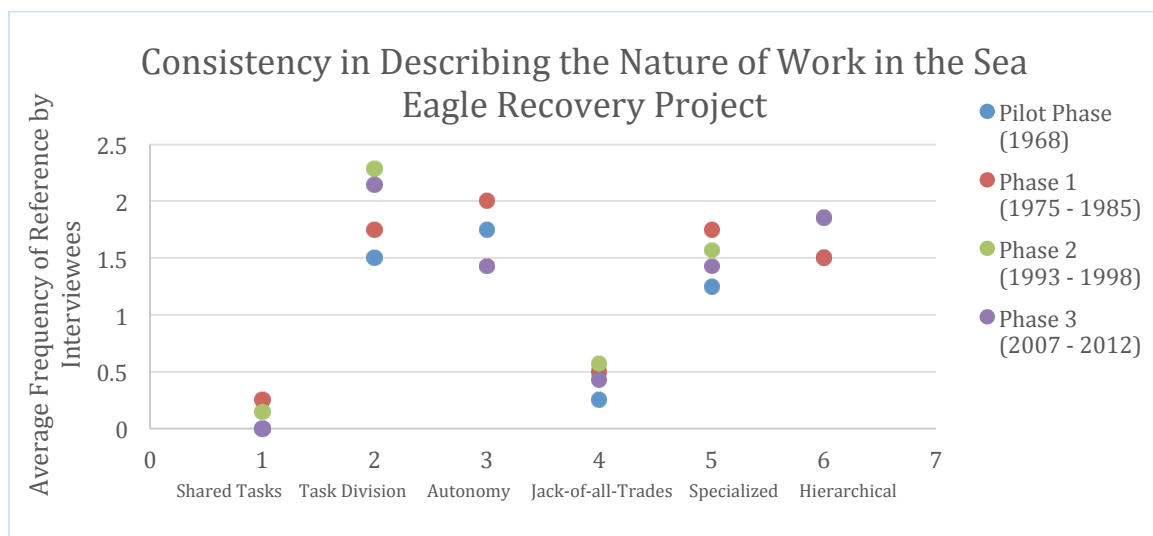
Theme 2: Goals, Targets & Evaluation

Theme 3: Public Relations/Community Outreach

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301 *Leadership & Management/Hierarchy & Autonomy*

302 More than half of interviewees' total reports on the nature of their experience described
 303 contact with supervisors as infrequent (n=4, 57%) but positive (n=4, 57%). These reports
 304 were made concurrent with verbal and nonverbal expressions of neutrality. More than
 305 half of interviewees described their work as autonomous (n=6; 54.5% of respondents)
 306 and all interviewees could clearly identify their own supervisors and key project advisors,
 307 as well as accurately detail the chain of command above and below them (n=11; 100% of
 308 respondents). Most interviewees' reports described the structure of their program as
 309 hierarchical (n=45, 51.72%). Most reports on the nature of work within the reintroduction
 310 also described specialized assignments and clear task division between employees (n=43,
 311 65%). Early phase participants reported slightly less hierarchy and greater autonomy than
 312 later-phase participants, but the difference was marginal, and overall descriptions were
 313 consistent throughout reintroduction phases (Figure 2).



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315 *Figure 2 – Demonstrating the consistency in nature of work throughout the Sea Eagle Recovery Program*

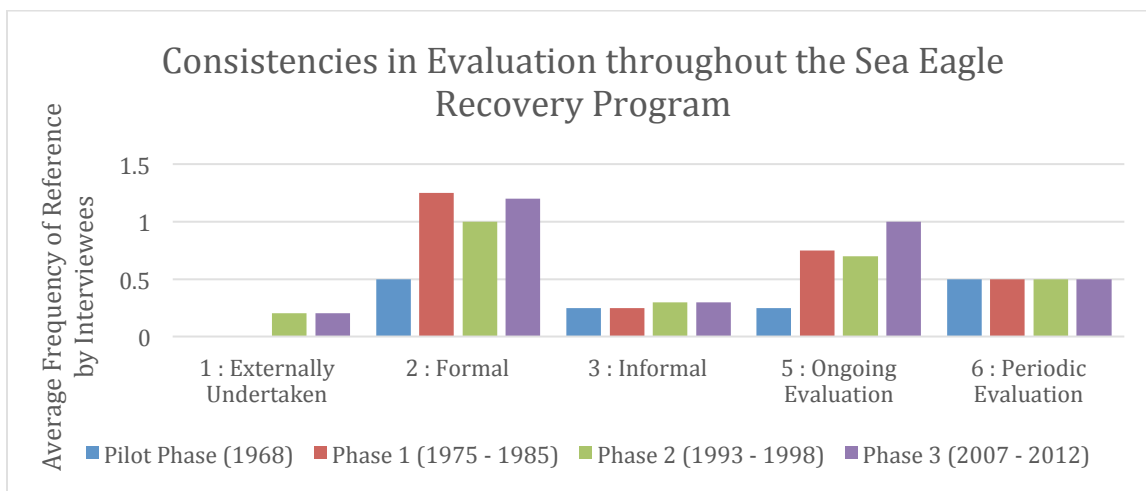
316 *Goals, Targets & Evaluation*

317 Interviewee reports on the nature of goal-setting differed by phase, with Pilot Phase
 318 (1968) reports tending to describe the goal-setting process as infrequent (n=3, 100% of
 319 reports) and *ad hoc* (n=4, 100% of reports) while Official Phases (1975 – 2012) reports
 320 tended to describe the process consistently as infrequent (n=6, 100% of reports) but
 321 formal and bureaucratic (n=30, 94% of reports).

322 The frequency with which interviewees discussed the impact of long-term goal
 323 setting increased with the project's progression, with the organizational influence of goal-
 324 setting arising four times more frequently with reference to the last phase of the project
 325 than the first (Pilot Phase frequency – 1; Phase 1 frequency – 1.75; Phase 2 frequency –
 326 3.28; Phase 3 frequency – 4).

327 Evaluation likewise was discussed more frequently as influential to success in the
 328 latter phases of the project (Pilot Phase – 1.75; Phase 1 – 2.75; Phase 2 – 3.29; Phase 3 –
 329 3.71). Descriptive reports of the nature of evaluation were consistent across phases:
 330 evaluation within the project was generally formal (n=27, 77% of reports), took place on
 331 an ongoing or *ad hoc* basis (n=20, 67% of reports), and was handled internally (i.e. did
 332 not involve an external agency or auditor; n=10, 100% of reports) (Figure 3).

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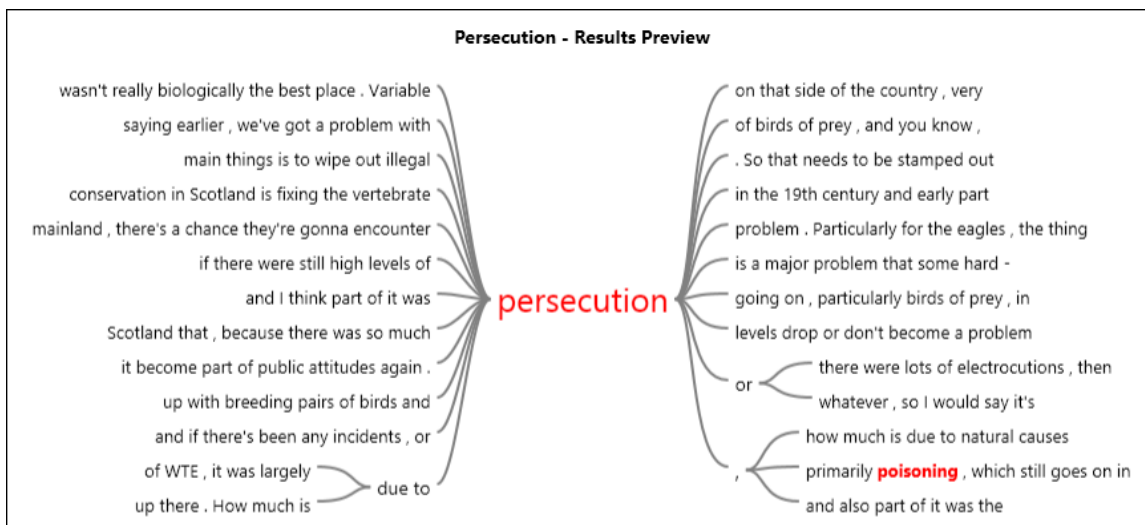
335 *Figure 3 – Demonstrating consistency in the nature of evaluation throughout the Sea Eagle Recovery Program*

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338 *Public Relations & Community Outreach*

339 Conflict and Persecution was by far the most frequently reported Public Relations issue
 340 (n=102 reports), nearly doubling in frequency-of-mention between the first and last
 341 phases of the project (Phase 1 frequency: 3.25; Phase 4 frequency – 5.28) across all four
 342 phases of the project. Tourism was a distant second in frequency of discussion (n=12
 343 reports). Concurrent with interviewees' reports of conflict and persecution were verbal
 344 and nonverbal expressions of feelings of frustration, sadness, anger, and/or
 345 resignation/fatigue (see contextual phrasing, Figure 4).



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 347 *Figure 4 – NVivo word tree results of a text term: 'persecution'*

348 **DISCUSSION**

349 Four critical factors in the human and organizational foundation of the Sea Eagle
 350 Recovery Project contributed to its success, helping it to overcome the challenges of
 351 limited biological knowledge, poor early support, and failures in its experimental pilot.
 352 These four critical success factors are common to all reintroduction projects, and the
 353 manner in which the Sea Eagle Recovery Project executed them could serve as an
 354 example for wildlife reintroductions worldwide:

355 *Leadership & Management* – A small, dedicated team of experts who served as
 356 strong scientific leaders in addition to political advocates provided a huge boon to the
 357 project (as first suggested in Clark & Westrum 1989). Roy Dennis and John Love
 358 invested huge amounts of time and personal capital in the first two decades of the Sea
 359 Eagle Recovery Project; their activities included everything from personally releasing the

360 birds to giving testimony to local and national governance in support of more supportive
361 wildlife laws.

362 Roy Dennis had already been working in the highlands of Scotland for nearly a
363 decade and was the director of the Fair Isle Bird Observatory when he began work on this
364 project. By chance, his 1968 trial release of four birds coincided with a visit to the bird
365 observatory by John Love, a zoology undergraduate from the University of Aberdeen
366 (Love 1983; Love, 2006; Tingay & Katzner, 2012). By the time the project officially
367 began in 1975, Dennis and Love had been working on re-establishing the bird for more
368 than sixteen years. Love & Dennis became the senior leaders of the program, and while
369 they recruited other scientists and experts to work with them, they maintained executive
370 control over the project. This lent the project a sense of continuity and set a structure that
371 (in combination with ongoing evaluation) buttressed the reintroduction against internal
372 negligence. Without long-term, consistent leadership of this nature, it is unlikely that the
373 reintroduction would have overcome its initial challenges.

374 This ‘champion’-style leadership (Post & Pandav 2012) is the most consistent and
375 perhaps most important advantage that the Project enjoyed, and was evident through all
376 four phases of the reintroduction. This style of leadership fits into a larger categorization
377 of ethical and transformational leadership – a style known to support positive
378 organizational outcomes and guide employee attitudes with minimal interference in day-
379 to-day employee operations (Toor & Ofori 2009). This minimal interference is reflected
380 in the infrequency/positivity of interviewees’ reports.

381 *Hierarchy & Autonomy* — Positive contact with leadership and operation within a
382 hierarchical framework (i.e. clear chains of command; assigned roles differentially by
383 rank, etc.) improved employee morale and productivity by raising individual
384 accountability and allowing a high degree of autonomy in completing those tasks. This
385 management approach was well suited to both the specific needs of reintroduction
386 projects (i.e. quick, decisive, responsive action in the field) and the desires of its
387 participants (i.e. freedom to self-direct throughout the day), leading to significant success.

388 The business literature suggests that autonomy confers significant benefits to
389 performance in the presence of high-variety tasks, or when task interdependence within a
390 group is high (Dodd & Ganster 1996; Langfred 2000). This has direct relevance for

391 conservation programs, in which employees work as part of a team, must perform varied
392 tasks competently, and must respond quickly and independently to changing conditions
393 (Soulé 1985; Clark & Westrum 1989). Retaining high autonomy — even within a strict
394 hierarchical structure — clearly confers useful benefit to conservation practitioners.

395 Sea Eagle Recovery Project employees had a unique flexibility to take
396 independent action when necessary, but also to ‘fall in’ to a known and clearly-defined
397 hierarchy when expert assistance (provided by strong, dedicated leader-experts) was
398 needed; this was yet another benefit conferred on the Project by its organizational culture
399 which contributed to its success.

400 *Goal-Setting & Evaluation* – Scrutiny surrounding the advent of the Sea Eagle
401 Recovery Project meant that Dennis, Love, and other project managers were under
402 pressure to demonstrate clear, measurable success. This came initially in the form of
403 annual reports on bird release numbers, rate of establishment, cost per bird, etc. These
404 early reports were the precursors to the more formalized reporting system established by
405 the Joint Nature Conservancy Council in the later Western phase.

406 Ongoing, critical internal evaluation (for an early advocacy of this method, see:
407 Kleiman et al. 1999) strengthened the validity of the project’s practices and improved
408 support among supporting entities (e.g. the Joint Nature Conservancy Council, Scottish
409 Natural Heritage). The amount of accountability in an organization may reflect in its
410 performance rating and evaluation process. Theoretically, the implementation of
411 performance ratings increases accountability by holding participants responsible for
412 actions taken and results produced. In reality, this may not always be the case, as
413 performance ratings and evaluations may be inefficient, inappropriate, or
414 counterproductive to improving performance (Halachmi 2002; De Lancer Julnes 2006;
415 Tilbury 2006).

416 Indeed, certain interviewees reported increasing concerns about the potentially
417 negative impact of goal-setting and evaluation; this warranted further inquiry. An
418 analysis of coding similarity using Jaccard’s coefficient confirmed that these interviewees
419 were outliers; they had participated in the Pilot Phase of the project, a time during which
420 formal evaluation of any kind was close to none, perhaps making them more aware of
421 later changes in guidelines and evaluation of the project.

422 Overall, the clear goalposts and regular (if infrequent) evaluation of progress
 423 conferred yet another benefit on the Sea Eagle Recovery Project. This is in part because
 424 the establishment and evaluation of goals requires good organizational governance (e.g.
 425 clear structure and diligent leadership) as a pre-existing condition for efficacy; in this
 426 way, these three elements are woven into a framework to build success, and the sea eagle
 427 reintroduction was fortunate to possess them.

428 *Public Relations & Conflict* – It can be difficult to parse the contribution of public
 429 relations to the ultimate performance of an organization or project. This is because the
 430 intangible benefits of improved relationships, improved legitimacy, or improved public
 431 opinion can be difficult or cumbersome to measure (Bennett & Gabriel 2001; Likely
 432 2003; Phillips 2006). Wildlife reintroduction programs are uniquely interrelated with
 433 issues of public sentiment (Clark & Westrum 1989; Kleiman 1989; Seddon et al. 2007).
 434 Thus, the likely relationship between public relations and program performance has
 435 definite salience to this field.

436 Indeed, incidents of persecution and
 437 conflict, particularly with local crofters and
 438 fishermen marred the earliest phases of the sea
 439 eagle reintroduction. Unexpectedly, the project
 440 had to contend with this onslaught of human-
 441 wildlife conflict. By the end of 2004, 25% of
 442 eagle mortality was attributable to persecution

Persecution is a major problem that some hard-line people will never give up – poisoning, especially -- and that's when sea eagles become vulnerable. But hopefully...the new generation will be better educated.

Interviewee #7, 2009

443 (JNCC 1988; Love 2006). The trauma of these events weighed heavily on the project and
 444 its participants, making it the most-often cited public relations issue across all interviews,
 445 with 85 references made by 10 of the 11 interviewees.

446 This early experience laid the painful paving stones for later shifts in the public
 447 relations strategy, however, and these shifts may have benefited the reintroduction — and
 448 the eagles — overall. The adaptive public approach that Project leaders eventually
 449 adopted reflected a growing understanding of the value of cultural sensitivity, inclusivity,
 450 transparency, and local “ownership” of conservation initiatives (for an example of
 451 successful implementation of this strategy in Ireland, see: O’Rourke 2014). Shifting the
 452 discourse with the public toward scientific openness, direct address of complications and

453 problems, improved linguistic parity, and linking the reintroduction to the public's
 454 regional identity were likely key to engendering better support and eventually allowing
 455 the Project to succeed (for further discourse analysis, see: Arts et al. 2012).

456

We had two clutches of eggs stolen in one year and some local residents said, "**Why**
didn't you ask us to help watch the nest?" So, we did. And it worked quite well. People
 have to, you know, get really involved and to feel that they are making a contribution.
 And it gave a sense of some importance in the community. Had we not done that, and
 sort of persisted in doing things the way we were, we'd be running the risk of saying
 "Well, actually, these aren't your birds at all. They are our birds. Keep away from them."
 And that's really the wrong attitude to take.

Interviewee #11, 2009

457 This adaptive public relations strategy, begun as a reaction to conflict, became a
 458 meaningful and significant element of the Project's organizational culture, and yet
 459 another contributing factor in the reintroduction's success.

460

461 **MANAGEMENT RECOMMENDATIONS**

462 Although these findings are limited by their exploratory (and therefore preliminary)
 463 nature, I draw on them to suggest four recommendations about best practices for
 464 organizational management in wildlife reintroduction projects:

- 465 1. *Leadership & Management*: Reintroductions benefit from dedicated, consistent,
 466 long-term 'champion-style' leadership.
- 467 2. *Autonomy & Hierarchy*: Reintroductions benefit from a clear hierarchical
 468 framework that serves as support for high employee autonomy in the field.
- 469 3. *Goal-Setting & Evaluation*: Reintroductions benefit from consistent, regular
 470 evaluation of progress toward formally established goals.
- 471 4. *Public Relations & Outreach*: Reintroductions benefit from adaptive public
 472 relations strategies that are open, transparent, inclusive (esp. linguistically), and
 473 culturally relevant.

474

475 **CONCLUSION**

476 The potential value of examining the conservation initiative (in this case, the
 477 reintroduction program) as an organization has been deeply neglected in the conservation
 478 literature. Despite its exploratory nature, the findings of this study suggest a specific and

479 potentially fruitful direction which future research could take. Following studies could
480 examine, broadly and comparatively, the differential outcomes of conservation initiatives
481 with differing leadership and management styles. Such a comparative study would be a
482 useful contribution to the growing wealth of literature related to conservation leadership
483 and management.

484

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492

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