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Do the weaknesses and strengths of experts and local volunteers affect the conservation actions focused on nesting plovers? Constructive considerations from the Italian beach front line

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4 **actions focused on nesting plovers? Constructive considerations from the Italian beach front**
5 **line**

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18

19 **Short title: Weaknesses, strengths, opportunities and threats in plover's conservation**

20

21 **Abstract** - Both the high-level strategies promoted by experts of public Conservation Agencies,
22 and the small-scale tactics implemented by local conservation groups show strengths, weaknesses,
23 opportunities and threats that can affect the effectiveness of the efforts aimed at the conservation of
24 plovers nesting on sand dunes (*Charadrius alexandrinus* and *Charadrius dubius*). Here we propose
25 a SWOT analysis, focusing on critical conditioning factors that should contribute towards rendering
26 effective the local conservation strategies: (1) experts should learn the tools of project management,
27 thus avoiding both 'analysis-paralysis' and 'epistemic arrogance' towards local volunteers, and
28 using a simplified scientific language to communicate smart operational guidelines to the people;
29 (2) editorial times necessary to draft guidelines should be shortened because sand-dune bird species
30 urgently need tools for rapid actions; (3) in conservation strategies, 'monitoring' means verifying
31 changes in an environmental target in the expected direction defined by specific project objectives
32 (it is not only a periodical field sampling of biodiversity targets). In this regard, experts should
33 monitor not only the status of plovers (pairs, nests and chicks) but above all the effectiveness of
34 conservation actions carried out; (4) local volunteers, often highly motivated towards these
35 charismatic species, have scarce knowledge, lack skill and funding availability; therefore

36 constituting an underutilized human potential which should be supported and adequately trained by
37 technicians in order to allow a fine-grained pervasive conservation of these declining species.

38

39 **Keywords:** analysis-paralysis, epistemic arrogance, project management, operational guidelines,
40 sand- dune species.

41

42 INTRODUCTION

43

44 In recent years, there has been an increase in attention towards the conservation of charadriids
45 nesting on the beaches (primarily Kentish Plover, *Charadrius alexandrinus* and secondarily Little
46 Ringed Plover *Charadrius dubius*). Although the Little Ringed Plover is classified as Least Concern
47 both at the global and national (Italian) level, the Kentish Plover, included in the Least Concern
48 category at global scale, is an Endangered species in Italy (Gustin et al. 2019) and in a critical status
49 due to the large number of anthropogenic pressures (dogs, trampling, mechanical beach grooming,
50 etc.: e.g. Pietrelli & Biondi 2012).

51 In Italy, a National Coordination Committee for the Kentish Plover was founded (CNCF:
52 <https://comitatofratino.org/>) and the National Nature Conservation Agencies (ISPRA) have recently
53 launched a protocol of monitoring programs on a national scale with the contribution of expert
54 ornithologists (Imperio et al. 2020). In parallel, an interesting social phenomenon started at the local
55 level: both environmental associations and groups of citizens (schools, bathhouses, individual
56 citizens) are activated in every breeding season for the protection of the nesting sites of these
57 species by active communication through social media (Facebook, Instagram, etc.). These groups
58 are very heterogeneous, in terms of availability of resources, professional skill, coordination and
59 membership in environmentalist associations. They initiate operational, political-administrative,
60 communication and education actions to protect nests and chicks in different local socio-
61 environmental contexts:

62 some of these are improvised, others are based on expert skills and standard protocols.

63 For more than a decade, we have been following some actions aimed at protecting the
64 nesting sites of these species on the coast of Tyrrhenian central Italy (Lazio), both directly (as chief
65 managers for protected coastal areas: Torre Flavia Natural Reserve and Centro Habitat
66 Mediterraneo) and indirectly (supporting local groups and coordinating actions on national and
67 local scales). Based on our experience, both the top-down strategies promoted by experts, and the
68 tactics implemented by local groups show strengths, weaknesses, opportunities and threats that may
69 affect the effectiveness of the efforts aimed at conservation of these species.

70 Therefore, we have analyzed these external and internal conditioning factors, listing them,
71 following a SWOT approach (Helms & Nixon 2010; Tab. 1), as an open proposal. Among these
72 factors, we focused on some selected critical weaknesses that, in our opinion, should be overcome
73 as soon as possible by the technical-scientific community of ornithologists. Finally, we concluded
74 suggesting a change in the approach used by experts in the involvement of local groups of
75 volunteers.

76

77 **ARE EXPERT ORNITHOLOGISTS AUTOMATICALLY GOOD CONSERVATION**
78 **MANAGERS?**

79

80 Ornithologists can develop good guidelines for assessing the status of charadriids (Imperio et al.
81 2020). However, conservation strategies do not only involve monitoring individuals, nests, eggs,
82 and chicks: they also require knowledge of the many tools available in the project management
83 arsenal (creative brainstorming aimed at obtaining original solutions, communication techniques
84 and approach to the public, decision-making, cost/benefit balance to select conservation options,
85 scenario analysis, stakeholder analysis, outcomes monitoring designs; Battisti 2018). Frequently,
86 these opportunities are not exploited. The expert ornithologists can provide important indications on
87 the conservation status, phenology, ecology and behavior of the species but the search for solutions,
88 decisions, actions, coordination and other socio-political-organizational and management aspects
89 require a different competence to be effective. To preserve sand-dune bird species in complex
90 socio-ecosystem contexts, expert ornithologists must acquire a problem-solving and project
91 management logic (Battisti et al. 2020). In order to know the many opportunities of management
92 science and to develop effective conservation actions, it is not enough to be only an expert in
93 charadriids (or other groups that
94 need protection). Ornithologists should move out of their “comfort zone” and acquire some of
95 these tools in their own background, thus enabling them to respond to operational,
96 social, organizational and political problems and human dimension dynamics occurring in the beach
97 front line.

98

99 **ANALYSIS-PARALYSIS SYNDROME AND ‘FEAR OF ACTING’**

100

101 Periodic monitoring of plover pairs and their breeding success is certainly an important step in
102 understanding their status. In the language of conservation project management, this phase is called
103 'situation analysis' (Hockings et al. 2006). However, any project that wishes to achieve conservation

104 objectives must move beyond the ‘situation analysis’ and address the subsequent steps of action-
105 planning and operational process in a real context. Guidelines and workshops keep focusing on
106 analytic issues (i.e. field sampling of nesting pairs and breeding success, reliability of methods and
107 protocols) without moving on to the next steps of the project cycle (solutions, decision-making,
108 operational actions, outputs and outcomes monitoring, adaptive management; Hockings et al. 2006),
109 with the only exception being the National Action Plans of some declining species (e.g.:
110 Ferruginous Duck *Aythya nyroca*, Rock Partridge *Alectoris graeca* or Egyptian Vulture *Neophron*
111 *percnopterus*). Continuing to collect detailed data on the status of breeding pairs of these species
112 can only make sense if parallel operational conservation strategies are launched on a local, regional
113 and national scale. Otherwise, they constitute what in project management is called "analysis
114 paralysis", i.e. "the unhealthy obsession with numbers, analyses, and reports" (Langley 1995;
115 Zuckerberg 2008). In this regard, “analysis-paralysis” describes an individual or group process that
116 by over-analyzing a situation can cause decision-making and operational actions to become
117 "paralysed", meaning that neither a solution nor a course of action is decided upon.

118 Field sampling is important, but it is only the first step in a conservation strategy. For these
119 declining species it is necessary to shift from basic-research objectives to applied conservation
120 project objectives, not only assessing the status of the charadriids but, above all, the effectiveness of
121 conservation actions, also by adopting specific monitoring designs (e.g. BACI: Underwood, 1994).
122 In conservation strategies, monitoring means verifying changes in an environmental target in the
123 expected direction defined by specific project objectives (Elzinga et al. 2009). It is a management
124 goal, not only a research goal limited to a multi-year sampling of breeding pairs in order to obtain
125 information on the status and on the chronological trends. Monitoring may be carried out if
126 conservation strategies are started, and operational objectives have been defined, so that the
127 achievement of the expected outcomes (assessment of the effectiveness of the project; Hockings et
128 al. 2006) can be verified. To overcome “analysis-paralysis”, Kane (2015) suggests some solutions
129 such as: (i) setting realistic objectives and deadlines and (ii) defeating the ‘fear of acting and
130 making mistakes’ and meeting the ‘real world’.

131

132 **HIGH STRATEGIES PROMOTED BY PUBLIC AGENCIES NEED TIME WHEREAS**
133 **BEACH FRONT- LINE ‘TACTICS’ REQUIRE RAPID RESPONSES**

134

135 It is important to issue guidelines and national expert-based standard strategies. However, their
136 editing and release require time (also due to ‘analysis-paralysis’). This is not compatible with the
137 short-term emergency needs of the local contexts (the ‘beach front line’). The timing of the local

138 ‘tactical’ choices is tight and dictated by the phenology of the species and by the local social
139 dynamics (bathing economy, beach cleaning, local politics, human dimension). Therefore, the
140 decision-making times of high-level strategies must adapt to the times both species phenology and
141 local crisis contexts. In addition to top-down strategies, there must be operational taskforces and
142 rapid training modules for local operators (e.g. using web platforms) in order to intervene quickly
143 with operational blitzes.

144

145 **OVER-TECHNICAL LANGUAGE AND THE DE-MOTIVATION OF LOCAL GROUPS**

146

147 Many local groups have numerous points of weakness: they have scarce resources, show a lack of
148 expertise and skill, and frequently are not coordinated by experts. Their spontaneous and often
149 naïve
150 initiatives are frequently criticized for being incorrect on the technical-scientific level. On the beach
151 front line, we have experience with individuals or groups of citizens left alone because they are
152 'amateurs' and, when they attempt to carry out minimum operational actions (e.g. positioning
153 fences), they are berated because times and methods have not followed technical-scientific
154 standards.

155 Impulsive actions carried out by inexperienced citizens can unfortunately create more harm
156 than good. However, it is also true that, in the absence of indications from experts, such emergency
157 interventions on these charismatic species will continue to be carried out locally. Therefore, before
158 adopting a critical (often ‘negative-destructive’) approach, the experts should make themselves
159 available (not only theoretically but also operationally in the field), and use a language that is easily
160 understood by amateurs, thus adopting a positive-constructive approach and avoiding what is called
161 'epistemic arrogance' (Battisti 2017). The latter ‘threat’ induced by experts only leads to
162 demotivating local groups that have a practical attitude towards conservation and which should
163 instead be trained and involved, therefore exploiting their points of strength (motivation, high
164 number, widespread and continuous presence on the beaches, rapid intervention).

165 Experts must make their expertise available with humility, develop listening skills,
166 communication and dialogue, in the field alongside volunteers and not keep people uninformed.
167 Considering them non-experts, can induce a ‘fear of acting’ and criticizing their operation can be a
168 negative top-down strategy of conservation.

169 Contextually, it is necessary to draw up as soon as possible a handbook of operational
170 guidelines, highlighting ranges of possible solutions and approaches to decision-making, in relation
171 to local constraints, circumstances and conditions (e.g. Pietrelli et al. 2001, Biondi et al. 2018).

172 These guidelines must be shared on social channels and not only limited to the restricted circle of
173 technicians (e.g. on scientific Journals or Proceedings), translating the scientific language in order
174 to make it understandable by a wide audience.

175 It is necessary to initiate an action for the training of local groups (Soldarini et al. 2019;
176 LIFE NetPro Net and CHOO-NA! project), leaving a range of flexible and context-specific
177 solutions. There is no 'ideal solution': in addition to good standard practices (e.g. fences, cages,
178 involvement with bathhouses and other stakeholders, political actions, communication strategies),
179 creative ideas can also be adopted, where resources in terms of personnel, means, materials and
180 technology are lacking. Brainstorming techniques may also be used (e.g. Marcot & Helbert 2015).
181 In our experience, some logistical solutions aimed at controlling both the flows of bathers and dog
182 owners (a growing category of stakeholders largely diffused and impactful) in the nesting areas.
183 This has been suggested by local volunteers, with little ornithological experience but with a
184 substantial knowledge of local social dynamics (see the role of 'wise-people' in conservation;
185 Battisti et al. 2020). For example, in the Torre Flavia dunes, a large number of volunteers, both
186 those belonging to a national association (LIPU – Italian partner of BirdLife International) and other
187 citizens living in the surrounding but not belonging to any organizations, cooperated extensively in
188 suggesting context-dependent solutions through brainstorming sessions. In these meetings, local
189 volunteers (extremely heterogeneous in their education, cultural level and age: children, artists,
190 surfers and so on; e.g. Battisti et al., 2018) provided ideas about (i) approaches to carry out a
191 stakeholders-oriented communication, (ii) involvement of local groups with judicial police duties,
192 (iii) strategies for closing stretches of beach after egg hatchings, avoiding conflicts with citizens,
193 (iv) providing graphic contents for information signs.

194 Obviously, everything related to bird monitoring, handling of eggs and chicks and other
195 technical aspects must always be the prerogative of the experts. However, local groups must be put
196 in a position to move quickly by providing them with clear smart guidelines on how to carry out
197 political, operational, communicative conservation education actions (see Jacobson et al. 2015).

198

199 **CONCLUSIONS**

200

201 We must wait no longer. While the headquarters of central Agencies define 'high' and top-down
202 long-term strategies, at local level (i.e. in the beach front line) there is a short-term (seasonal) loss
203 of nests and chicks. The answer can not only be the issue of professional guidelines to assess the
204 status and the trends but also of helping many local groups to train, coordinate and act properly in
205 an appropriate way by providing conceptual and operational tools. The experts are few, local

206 citizens and non-academic ornithologists are many and they are present in the field continuously.
207 These last are the first to detect breeding pairs and nests and allow conservation actions to be
208 launched. Their contribution must be recognized. Although having some points of weakness, they
209 constitute a potential that is still not emphasized enough and are too often criticized. One must ask
210 whether preventing local groups from acting is a good move.

211 In critical times for the conservation of these species we cannot afford to be blocked in
212 analytical aspects but must start, both with pragmatic conservation plans on a national scale, and
213 with smart operational guidelines for operators at local scales, following both failures and successes
214 of local scale experiences (see Regosin 2016; Bird Life Australia 2020; for Italy, Battani et al. 2019,
215 Biondi et al. 2018, 2019, Soldarini et al. 2019). Numerous volunteers, motivated, supported and
216 adequately trained by technicians could be very useful in starting a process of fine-grained
217 pervasive conservation for beach-nesting bird declining species.

218

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236

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295

296 **Table 1.** A proposal for a SWOT analysis focusing on Strengths (S), Weaknesses (W),
 297 Opportunities, (O), and Threats (T) of experts and local volunteers. See text for details.
 298

	Strengths	Weaknesses	Opportunities	Threats
Experts/Agencies	Strong background (wide knowledge of bio-ecology of the species).	(Possible) Insufficient background in project management.	Professional growth in conservation science and project management (not only in ecological science).	Epistemic arrogance and consequent demotivation toward non-professional volunteers (=failure of conservation efforts).
	Ample availability of budget, resources, personnel, and technology.	Prolonged time in drafting guidelines.		
	High impact in policy and policy arenas.	Analysis-paralysis		
		Technical-scientific language understandable with difficulty by many local groups.		
	Low number (difficulty in reaching the sites personally).			
Local groups	Large number of volunteers.	Poor knowledge of bio-ecology of species.	Training of local groups and the support from technical structures could automatically increase the success of conservation through a widespread and pervasive action.	Lack of skills and organization (= consequent failure of conservation effort)
	Fine-grained distribution throughout the territory.	Little or no access to scientific literature and technical guidelines.	Opportunities for conservation education using charadrids as flag and umbrella species (communicating the values of dune ecosystems).	

<p>High motivation and enthusiasm.</p>	<p>Little competence in adopting practical solutions (lack of background in conservation and project management).</p>	<p>Opportunities for conservation education using charadrids as flag and umbrella species (communicating the values of dune ecosystems).</p>
<p>High ability to intervene quickly on the field.</p>	<p>Scarce availability of resources (money, personnel, poles, ropes, cages).</p>	<p>Opportunities to form groups of volunteers who, at the local level, will be able to promote conservation actions also directed towards other ecological targets.</p>
<p>High cognitive diversity (different cultural backgrounds: strategy for select creative solutions; see Battisti, 2018).</p>	<p>Political impact (often) absent or scarce.</p>	
	<p>Poor coordination between volunteers and with strategic Agencies.</p>	