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Brief Report

Rock and Plovers—A Drama in Three Acts Involving a Big Musical Event Planned on a Coastal Beach Hosting Threatened Birds of Conservation Concern

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Abstract: Big musical events often coincide with natural spaces, and therefore they may have an impact on sensitive ecosystems. Here, a story of events that took place following a big event on an Italian beach within a Special Protection Area (SPA; hosting embryonic shifting dunes and plover birds of conservation concern) is reported. Following a theatrical approach to conservation, this story unfolds in three acts (Act I: The Premises; II: On the Field; III: Long-Term Effects) that include the social targets ('actors') involved (i.e., the pop star's staff, ONG, institutions, and local stakeholders) as well as the critical issues and conflicts. This experience provides some conservation lessons: (i) big musical events can have an impact on sensitive socio-ecosystems; (ii) the intrinsic value of coastal ecosystems has been underestimated since the site selection was carried out by decision makers with inaccurate/inappropriate use of digital tools; (iii) communication among the private organizers, public institutions, ONG, and people was poor; (iv) the availability of huge economic resources has made the local municipality vulnerable; (v) digital social processes increased polarization between opposing parties with an increase in local conflicts among Public Agencies; and (vi) these conflicts had long-term cascade effects on the nature reserve's management. To communicate conservation stories, I encourage conservation practitioners to use a theatrical approach to communicate local events with socio-ecological implications—increasing awareness of human–wildlife conflicts and cognitive bias emerging after unshared decisions—using simplified conceptual frameworks.

Keywords: embryonic shifting dunes; plover birds; digital devices; cognitive bias; social haters

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1. Introduction

Classical, pop, and rock musicians have made their concert locations coincide with alpine meadows, woods, beaches, and other natural spaces [1,2]. Even though it is an original choice to combine music and nature, these big events are likely to have an impact on ecosystems, especially in sensitive locations of high conservation concern [3]. Indeed, these events can start a series of anthropogenic disturbances ranging from land consumption for the construction of musical stands, to the transit of motorized vehicles, to the large crowding of people with consequent soil trampling, to light and noise pollution [3–5].

In 2019, a pop star planned a tour on the beaches of the Italian peninsula [6]. This musician's message was simple but effective: it promoted pro-environmental attitudes (e.g., plastic-free behavior) in a context of music, nature, and freedom. As a result, a non-governmental organization (hereafter, ONG) partnered with the national events planned under its brand (https://www.youparti.com/event/jova-beach-party-2019/ (accessed on 20 June 2022).

The music world and environmental ONGs joining forces should be viewed positively, especially in an era where it is necessary to communicate proactive conservation messages to the general public in order to increase awareness. Therefore, these actions are also included in conservation measures (coded in [7]: 4.3—Awareness and communications, 7.2—Alliances and partnerships). People go to concerts, musicians and ONGs communicate

clear and simple concepts, and people improve their awareness: this is a shared linear logic that can be achieved by working together!

However, 'The Road to Hell is Paved with Good Intentions'. In fact, even if linear logic can seem clear, the events in the real socio-ecological world tend to be complex and unpredictable [8], especially if context-specific aspects are not taken into account, such as (i) the local value of ecosystems, (ii) the shared communication among institutions and social targets ('actors'), and (iii) the feedback that may emerge among them, reinforced by cognitive biases, as systematic patterns of deviation from the norm or rationality in judgment (anchoring, prejudices, and so on).

In this note, I report a story of events that took place following a big musical event organized by a pop star, together with an international environmental ONG, along an Italian coastal beach. This event has led to long-term conflicts at the local and national scale, with local implications in conservation [9].

I believe telling local stories of conservation can make it possible to synthesize the large number of social, ecological, and political events that happen in the 'real world', evidencing conflicts among social actors. Building a framework subdivided in time-related steps (i.e., 'acts' and 'scenes') may allow nature reserve agencies to predict future similar events in advance and therefore respond with specific management actions in the 'real world' conservation front line.

2. Materials and Methods

2.1. Study Area

I focused attention on the causal chain of events that took place in a coastal nature reserve (Torre Flavia wetland; 41°58′ N, 12°03′ E, on the Tyrrhenian coast of central Italy; Special Protection Area, SPA IT6030020: 40 ha in size), hosting embryonic shifting dunes of European conservation concern (EU habitat type 1210: "Embryonic shifting dunes"), and where two birds of conservation concern breed on the foredunes and beaches (*Charadrius alexandrinus*, Annex 1, 147/2009/EU Directive, and *C. dubius* [10,11]). These two species are declining at the continental and regional level [12] due to a set of different anthropogenic threats [13–15]. At this site, a big musical event predicted a total of >40,000 people at the concert planned in July, 2019 (https://www.liveyourlive.it/festival/913) (accessed on 15 July 2021).

2.2. Methods

From summer 2018 (before the planned event) to today (2022), during which the ordinary management actions were carried out by the Public Agency managing the 'Torre Flavia' Special Protection Area (i.e., the 'Città metropolitana di Roma Capitale' Public Agency; Decree of the President of Regional Council, n. 613/1997), all the ecological, social, and political events that took place locally have been reported in an agenda, using the approach ('diary of events') reported in [16].

All the main events with conservation implications on plover bird conservation were selected, obtaining a list of (i) the main steps (named 'Acts'), i.e., phases of the story's development (I: The Premises; II: On the Field; III: Long-Term Effects) and (ii) within them, the main sub-steps (named 'Scenes'), as temporal phases where specific dynamics among social actors have taken place. Everywhere, a theatrical metaphoric approach in conservation front lines [17–19] was used, where any event may be considered a scene with different social actors having a role in the whole of the story. In our case study, all the social actors involved have been reported, as well as the critical issues that have triggered the conflicts, using specific symbols (see Figure 1).

The social actors of this story (i.e., the social targets having a role in the events [20–22]) are the staff of the music pop star, the environmental association (ONG) that organized the event (particularly its Communication Office), the public institutions ((i) 'Regione Lazio', as the Regional Authority responsible for the Environmental Impact Assessment (EIA); (ii) the 'Città metropolitana di Roma Capitale', as the public Park Agency managing 'Torre

Flavia' Special Protection Area'; and (iii) the Municipality of Ladispoli that would host the big musical event), and, finally, the local stakeholders and people using social media.

All of this story has been schematized in a simplified conceptual framework where the social actors, events, and outcomes/criticalities have been reported on a timeline (Figure 1).

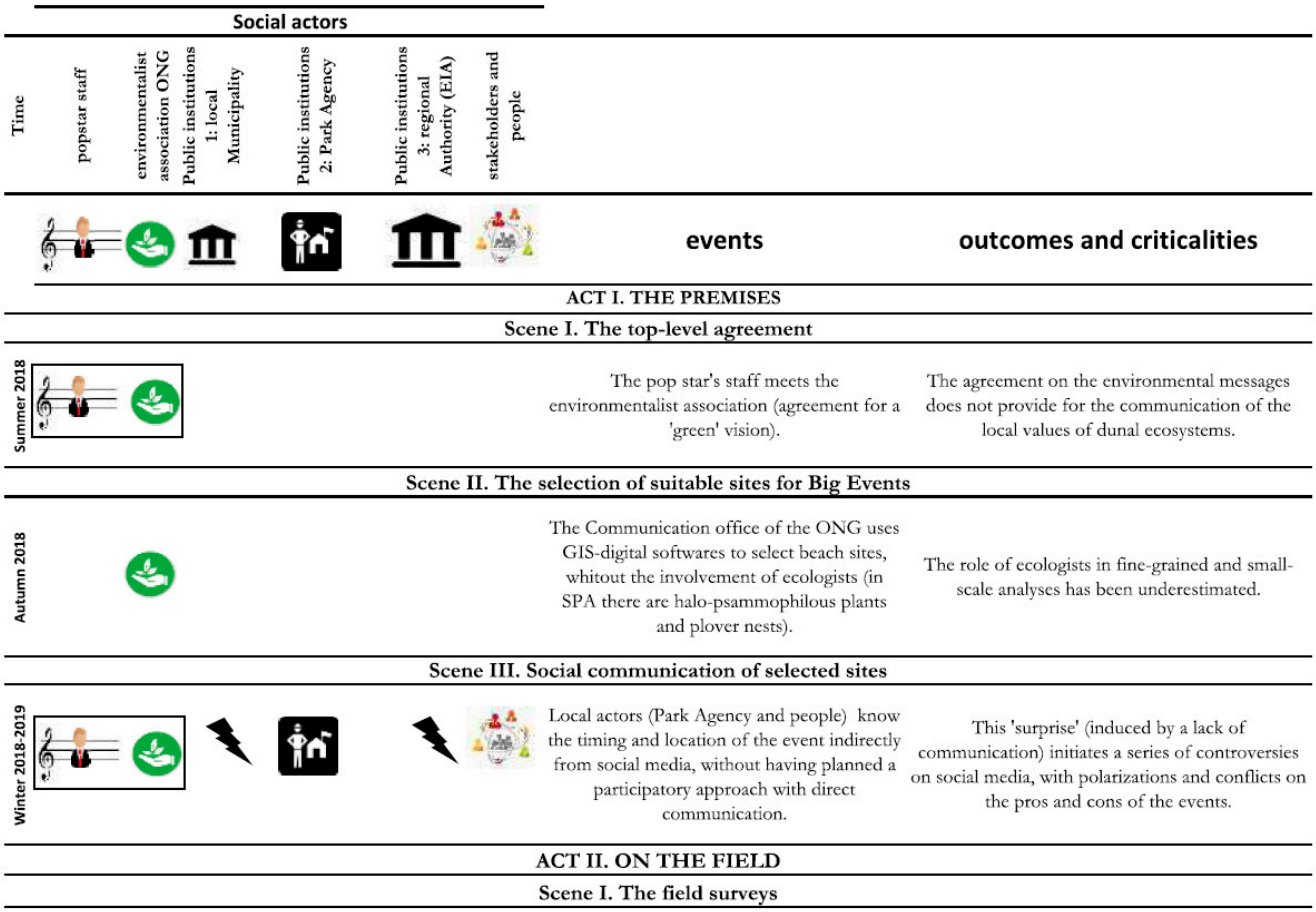

Figure 1. *Cont.*

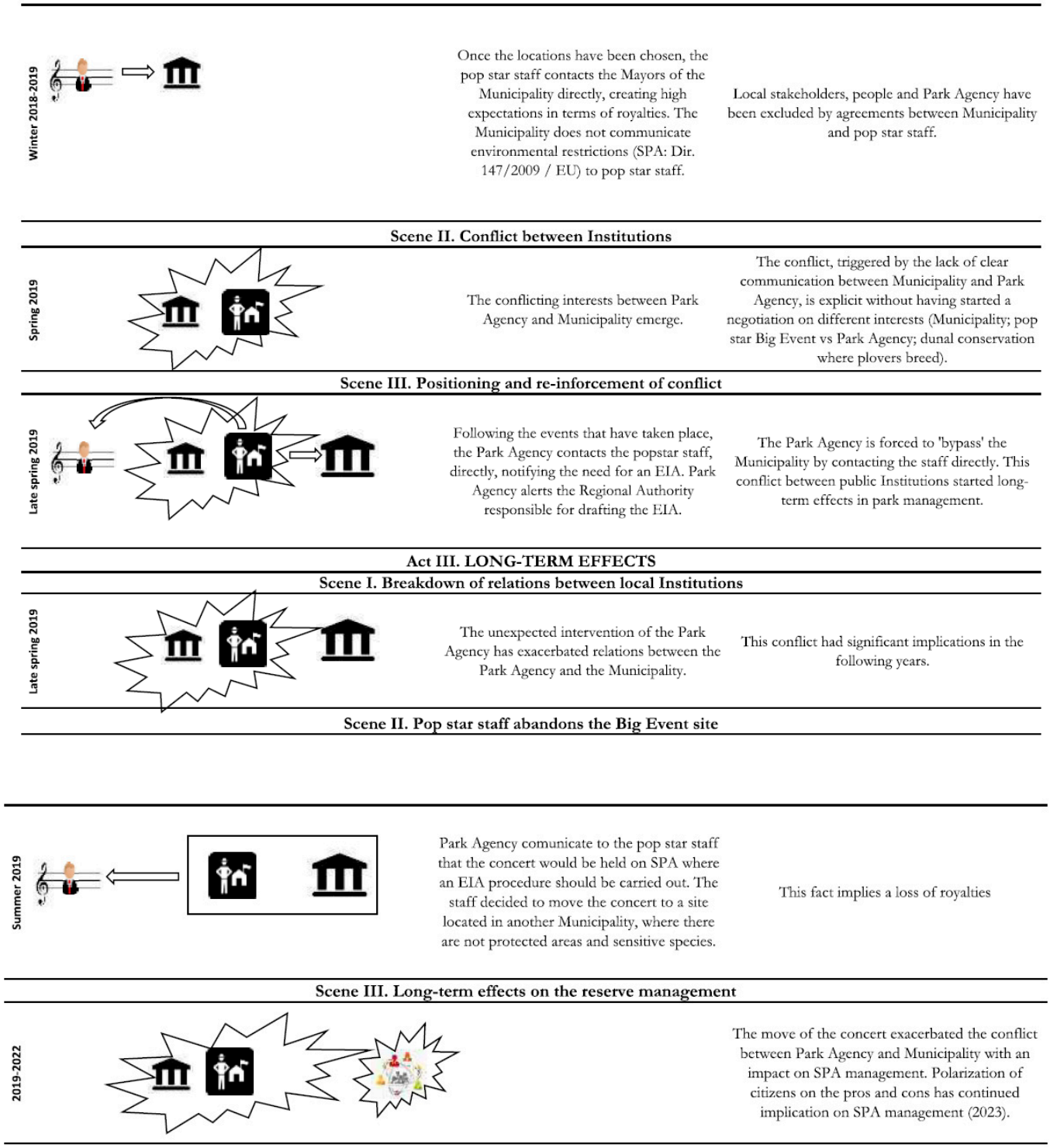

Figure 1. A framework of the conservation drama in three acts (and related scenes) involving a big musical event and two threatened beach-nesting birds (see Methods for details). Boxes: the agreements; lightning: the 'surprises'; arrows: the relationships between actors; stars: the conflicts.

3. Results

Below, the three acts (and related scenes) of this conservation drama have been reported, as selected by the diary of events.

3.1. Act I (The Premises)

Scene I: The top-level agreement (actors: pop star's staff and environmental ONG).

Summer 2018: An international pop star programs a tour in Italy for 2019, locating all the big events on different large beaches along the peninsula (https://www.smemoranda.it/evento/jova-beach-party-2019-date/ (accessed on 15 February 2020). The pop star's organizational staff meets an environmental ONG with the aim of framing the tour in a 'green' logic. While the intentions appear to be unanimous in conveying generic environmental messages for people (nature, plastic free, etc.), the agreement does not provide for the communication of the local small-scale values of coastal dunal ecosystems to the wider public. Indeed, along the Italian peninsula there is a large number of sandy beaches hosting sensitive halo-psammophilous dunal vegetation [23,24], with rare beach-nesting birds such as plovers (Charadridae; in our case study: 1-3 breeding pairs of Little Ringed plover, *Charadrius dubius*, and 1-3 breeding pairs of Kentish plover, *Charadrius alexandrinus* [25,26]).

Scene II: The selection of suitable sites for the big events (actor: Communication Office of the environmental ONG).

Autumn 2018: The choice of suitable sites for concerts is based on specific characteristics (open spaces that can accommodate thousands of people, proximity to the sea, occurrence of large sandy beaches) to convey the pop star's message of nature and freedom. The procedure of selection is carried out by the Communication Office of the environmental ONG. GIS digital devices were inappropriately used to support the decision to select the suitable sites (WWF Italy, pers. comm.). Although digital devices are suitable tools for spatial analyses, when applied to small-scale site selection they should be supported by field surveys carried out by ecologists to detect fine-grained ecosystem values. Indeed, this entrenchment on the site selection initiated a series of cascade effects.

Scene III: Social communication of the selected sites (actors: pop star's staff, Park Agency, stakeholders, and people).

Winter 2018–2019: Once they had selected a set of sites for the music events, the pop star's staff and the environmental ONG start with the communication of the music tour on websites. In our case study, the Municipality of Ladispoli (Rome), due to this economic opportunity, does not communicate any information about the timing and location of this musical event. Many local actors and stakeholders know the timing and location of the event indirectly from social media, without having planned a participatory approach with direct communication (see [27]). This lack of communication provided a 'surprise effect' with consequent polarization and conflicts on social media between people on the pros and cons of the events (labeled with slogans as prejudicial shortcuts, e.g., 'pro-party' vs. 'environmentalists' [28]).

3.2. Act II (On the Field)

Scene I: The field surveys (actors: pop star's staff, local Municipality, and Regional Authority).

Winter 2018–2019: Once the locations (coastal beaches) have been chosen, the pop star's staff contacts the Mayors of the local Municipalities directly. This creates high expectations among the Municipality staff in terms of economic royalties for the use of the areas. In our case study, the Municipality staff does not communicate any environmental restrictions to the pop star's staff who have no knowledge of the restrictions in the SPA, i.e., the need for a specific environmental authorization by the Regional Authority (EIA) assessing the possible impact of this big event. The Municipality is aware of the rules of this Directive of the need of an EIA (the request form is available on the institutional website for anyone who needs it: see https://www.comunediladispoli.it/upload/allegati/SCIA.pdf (accessed on 11 March 2022).

Scene II: Conflict between public institutions (actors: local Municipality and Park Agency).

Spring 2019: The conflicting interests of the Park Agency and Municipality emerge following the lack of clear communication between these public institutions without having started a negotiation on their different interests (Municipality, pop star's big event vs. Park Agency, managing the SPA 'Torre Flavia').

Scene III: Polarization and reinforcement of conflict (actors: Park Agency, local Municipality, and pop star's staff)

Following the events that have taken place, the Park Agency contacts the pop star's staff directly, communicating the regulations in the area and the need to carry out an EIA. The Park Agency alerts the Regional Authority responsible for drafting the EIA in the SPA 'Torre Flavia'. This conflict between the public institutions has had long-term effects on park management.

3.3. Act III (Long-Term Effects)

Scene I: Breakdown of relations among local Institutions (actors: local Municipality and Park Agency).

The entry of the Regional Authority exacerbates the relations between the Park Agency and the local Municipality with medium–long-term effects.

Scene II: Pop star's staff abandons the big event site.

Following the intervention of the Park Agency and the opposition of the Regional Authority to the concert (after the EIA), the staff decided to move the concert to a site located in another neighboring Municipality where there are not sensitive dune ecosystems and species.

Scene III: Long-term effects on the nature reserve's management (actors: Park Agency, local Municipality, stakeholders, and people).

The move of the concert breaks the common relationships between the Park Agency and local Municipality (which were crucial for the ordinary management actions carried out in the nature reserve). This led to long-term effects that will affect many sectors of the management that were taken care of by the Municipality according to the Park Agency (management of the dunes, beach litter removal, reedbed moving management, conservation education with children). At the level of local stakeholders and people, the polarization of the citizens on the pros and cons has continued on social media until today (2022), including anti-social behavior (e.g., social haters) making further communication difficult regarding the value of the SPA and, consequently, the nature reserve's management. After two years and with great effort, we are now witnessing a resumption of the relationships between the local institutions, thanks to the dialogue and the awareness of the events told through this story.

4. Discussion

This experience took the form of drama because the events triggered long-term cascading effects capable of creating difficulties in the management of the Special Protection Area ('Torre Flavia' nature reserve). However, the storytelling of this drama using a theatrical metaphoric approach provided some conservation lessons, reported below.

First, analogously to any recreational disturbances [29], big musical events can have an impact on ecosystems, especially if structurally simplified, such as coastal dunes [4]. This also confirms how these structurally simplified, dynamic, and sensitive ecosystems [30] are evaluated for their purely economic value and much less for the ecosystem services they perform [31–33]. This experience should induce Public Agencies and Municipalities planning big musical events to assess dunes as ecosystems providing useful services (not only evaluated following a traditional monetary approach [34]).

Second, the site selection of where to perform concerts must be entrusted to people with expertise in dunal ecosystems. The perception of the importance of ecosystems differs even among technicians (e.g., [34]), and, in this case, the intrinsic value of coastal dune ecosystems has been underestimated because this selection has been carried out by experts in communication (not by ecologists!). Communicators (in this case, using GIS digital devices) may not be able to detect conservation targets at small spatial scales. Therefore, inaccurate/inappropriate use of digital tools, excluding ecologists in the decision processes, anchoring to the first choices [35], and the short times available led to the wrong site selection.

Third, communication must always be shared between private organizers (the pop star's staff), public institutions (Municipalities, Park Agencies, and Regional Authorities), environmental ONGs, and people. Having active, open, and participatory communication is one of the foundations of leadership and management, including environmental management [36]. In this regard, public institutions should communicate their intentions openly through regular meetings. Each preliminary decision about actions in areas of conservation and civic concern (such as SPAs) should be flexible and made public through the institution's website, so as to obtain a participatory and shared final decision [37].

Fourth, the availability of huge economic resources provided by the pop star's staff may be an element that makes local public institutions vulnerable. In our case, economic opportunities linked to the big event induced the local Municipality to be reluctant to provide information about the need of an EIA authorization to the music staff or to the population and the Park Agencies, creating misunderstandings, 'surprise effects' [38], and conflicts between local actors.

Fifth, digital social processes can increase polarization between opposing parties with an increase in levels of conflict [39]. A sharing of objectives, communicated immediately, can reduce this feedback, controlling the cognitive biases [40], anchoring, and prejudices, with the polarization and simplification of languages ('environmentalists pro-Plovers' vs. 'non-environmentalists pro Big Events'). In nature conservation, these cognitive biases can increase misunderstandings and conflicts and must be recognized immediately [41].

Sixth, the conflict between public institutions (Park Agency and local Municipality) had long-term cascade effects on the common management of the nature reserve (reedbed mowing, beach cleaning, conservation education, and so on).

Last but not least, the fact that the beaches were used for big musical events has started an imitative effect at the national scale (e.g., https://www.latinatoday.it/eventi/immersioni-sonore-latina.html (accessed on 20 October 2022), creating a pervasive and fine-grained impact on dune ecosystems and its biodiversity of conservation concern. Unexpectedly, the impacts of these events is still poorly studied [4,5].

The effectiveness of storytelling techniques in science [42,43] and conservation [44,45], using a theatrical approach to communicate stories, has been highlighted [19,45,46] and its use may allow an improvement of awareness of the emerging conflicts, misunderstandings, and criticalities. In this regard, I encourage conservation practitioners to tell stories of events that took place in the conservation front line, also using scenario analyses, conceptual frameworks, and causal chains [47] and testing its effectiveness using specific social metrics [48].

However, in our case the musical event has been moved without causing direct environmental impacts on diversity targets (halo-psammophilous plants and plover birds), only having social and political implications on the nature reserve's management. Therefore, this narration has reported a local story of related human-dimension events, denouncing the absence of the involvement of ecologists. If such musical events are performed in the future, the role of ecologists will be necessary, not only in the phase of decision making (site selection) but also in the before–after impact monitoring, using specific approaches (e.g., BACI design [49,50]).

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References

1. TripAdvisor. Concerts and Shows in The Alps. 2021. Available online: https://www.tripadvisor.com/Attractions-g2324478-Activities-c58-The_Alps.html (accessed on 15 July 2022).
2. Wikipedia. T4 on the Beach. 2021. Available online: https://en.wikipedia.org/wiki/T4_on_the_Beach (accessed on 11 February 2020).
3. Jiang, J.J.; Lee, C.L.; Fang, M.D.; Tu, B.W.; Liang, Y.J. Impacts of emerging contaminants on surrounding aquatic environment from a youth festival. *Environ. Sci. Technol.* **2015**, *49*, 792–799. [CrossRef] [PubMed]
4. Andriolo, U.; Gonçalves, G. Impacts of a massive beach music festival on a coastal ecosystem—A showcase in Portugal. *Sci. Total Environ.* **2022**, *861*, 160733. [CrossRef] [PubMed]
5. Battisti, C.; Marini, F.; Sarrocco, S.; De Santis, E.; Savo, E. Analisi degli impatti di un evento musicale (Jova Beach Party, Campo di Mare, Italia centrale) su comunità ornitiche urbane e di mosaico ambientale: Prime evidenze. *Alula* **2019**, *26*, 15–24.
6. Normandale, P.; Firth, H. Jova Beach Party Tours Italy with PROLIGHTS: Much more Than a Concert! Music and Light. 2019. Available online: https://www.musiclights.it/news_eventi.html?ID=233andlang=ENandlang=ITandlang=ITandlang=EN (accessed on 22 July 2022).
7. Salafsky, N.; Salzer, D.; Stattersfield, A.J.; Hilton-Taylor, C.; Neugarten, R.; Butchart, S.H.; Collen, B.; Cox, N.; Master, L.L.; O'Connor, S.; et al. A standard lexicon for biodiversity conservation: Unified classifications of threats and actions. *Conserv. Biol.* **2008**, *22*, 897–911. [CrossRef]
8. DeFries, R.; Nagendra, H. Ecosystem management as a wicked problem. *Science* **2017**, *356*, 265–270. [CrossRef]
9. Cesaro, P. Much Ado about Jovanotti: The Jova Beach Party. Italics Magazine. 2019. Available online: https://italicsmag.com/2019/08/29/much-ado-about-jovanotti-the-jova-beach-party/ (accessed on 11 September 2022).
10. Battisti, C.; Cento, M.; Fraticelli, F.; Hueting, S.; Muratore, S. Vertebrates in the "Palude di Torre Flavia" Special Protection Area (Lazio, Central Italy): An updated checklist. *Nat. Hist. Sci.* **2021**, *8*, 3–28. [CrossRef]
11. Battisti, C.; Perchinelli, M.; Luiselli, L.; Dendi, D.; Vanadia, S. Cages Mitigate Predation on Eggs of Threatened Shorebirds: A Manipulative-Control Study. *Conservation* **2022**, *2*, 450–456. [CrossRef]
12. Pietrelli, L.; Biondi, M. Long term reproduction data of Kentish Plover *Charadrius alexandrinus* along a Mediterranean coast. *Bull.-Wader Study Group* **2012**, *119*, 114–119.
13. Battisti, C.; Luiselli, L.; Pantano, D.; Teofili, C. On threats analysis approach applied to a Mediterranean remnant wetland: Is the assessment of human-induced threats related to different level of expertise of respondents? *Biodiv. Conserv.* **2008**, *17*, 1529–1542. [CrossRef]
14. Battisti, C.; Luiselli, L.; Teofili, C. Quantifying threats in a Mediterranean wetland: Are there any changes in their evaluation during a training course? *Biodiv. Conserv.* **2009**, *18*, 3053–3060. [CrossRef]
15. Battisti, C.; Gallitelli, L.; Vanadia, S.; Scalici, M. General macro-litter as a proxy for fishing lines, hooks and nets entrapping beach-nesting birds: Implications for clean-ups. *Mar. Pollut. Bull.* **2023**, *186*, 114502. [CrossRef] [PubMed]
16. Battisti, C.; Perchinelli, M.; Luiselli, L.; Amori, G. A "diary of events" to support the management actions on two beach-nesting birds of conservation concern: Historicization of experiences, learned lessons, and SWOT analysis. *Isr. J. Ecol. Evol.* **2022**. [CrossRef]
17. Jacobson, S.K.; McDuff, M.D.; Monroe, M.C. *Conservation Education and Outreach Techniques*; Oxford University Press: Oxford, UK, 2015.
18. Heras, M.; Tàbara, J.D. Conservation theatre: Mirroring experiences and performing stories in community management of natural resources. *Soc. Nat. Resour.* **2016**, *29*, 948–964. [CrossRef]
19. Boesch, C.; Gnakouri, C.; Marques, L.; Nohan, G.; Herbinger, I.; Lauginie, F.; Boesch, H.; Kouamé, S.; Traoré, M.; Akindes, F. Chimpanzee conservation and theatre: A case study of an awareness project around the Taï National Park, Côte d'Ivoire. In *Conservation in the 21st Century: Gorillas as a Case Study*; Stoinski, T.S., Steklis, H.D., Mehlman, P.T., Eds.; Springer: New York, NY, USA, 2008; pp. 128–135.
20. Cortés-Avizanda, A.; Pereira, H.M.; McKee, E.; Ceballos, O.; Martín-López, B. Social actors' perceptions of wildlife: Insights for the conservation of species in Mediterranean protected areas. *Ambio* **2022**, *51*, 990–1000. [CrossRef]
21. Cáceres, D.M.; Tapella, E.; Quétier, F.; Díaz, S. The social value of biodiversity and ecosystem services from the perspectives of different social actors. *Ecol. Soc.* **2015**, *20*, 62. [CrossRef]
22. Beier, P.; Brost, B. Use of land facets to plan for climate change: Conserving the arenas, not the actors. *Conserv. Biol.* **2010**, *24*, 701–710. [CrossRef]
23. Sperandii, M.G.; Prisco, I.; Acosta, A.T.R. Hard times for Italian coastal dunes: Insights from a diachronic analysis based on random plots. *Biodiv. Conserv.* **2018**, *27*, 633–646. [CrossRef]
24. Acosta, A.T. Coastal Dune Vegetation Zonation in Italy: Squeezed Between Environmental Drivers and Threats. In *Tools for Landscape-Scale Geobotany and Conservation*; Pedrotti, F., Owen Box, E., Eds.; Springer Books: Berlin/Heidelberg, Germany, 2021; pp. 315–326.
25. Drius, M.; Jones, L.; Marzialetti, F.; de Francesco, M.C.; Stanisci, A.; Carranza, M.L. Not just a sandy beach. The multi-service value of Mediterranean coastal dunes. *Sci. Total Environ.* **2019**, *668*, 1139–1155. [CrossRef]

26. Galasso, P.; Spinella, G.; Zafarana, M.A.; Barbera, A.; Cusmano, A.; Cumbo, G.; D'Amico, D.; Grimaldi, D.; Ientile, R.; Laspina, F.; et al. Status, distribution and conservation of Kentish plover *Charadrius alexandrinus* (Aves, Charadriiformes) in Sicily. *Nat. Hist. Sci.* **2021**, *9*, 51–62. [CrossRef]
27. Walker, B.H.; Carpenter, S.R.; Anderies, J.M.; Abel, N.; Cumming, G.S.; Janssen, M.A.; Lebel, L.; Norberg, J.; Peterson, G.D.; Pritchard, L. Resilience management in social–ecological systems: A working hypothesis for a participatory approach. *Conserv. Ecol.* **2002**, *6*, 14. Available online: http://www.consecol.org/vol6/iss1/art14/ (accessed on 15 September 2020). [CrossRef]
28. Cusack, J.J.; Bradfer-Lawrence, T.; Baynham-Herd, Z.; Castello y Tickell, S.; Duporge, I.; Hegre, H.; Moreno Zarate, L.; Naude, V.; Nijhawan, S.; Wilson, J.; et al. Measuring the intensity of conflicts in conservation. *Conserv. Lett.* **2021**, *14*, e12783. [CrossRef] [PubMed]
29. Grunewald, R. Assessment of damages from recreational activities on coastal dunes of the southern Baltic Sea. *J. Coast. Res.* **2006**, *22*, 1145–1157. [CrossRef]
30. Defeo, O.; McLachlan, A.; Armitage, D.; Elliott, M.; Pittman, J. Sandy beach social–ecological systems at risk: Regime shifts, collapses, and governance challenges. *Front. Ecol. Environ.* **2021**, *19*, 564–573. [CrossRef]
31. Barbier, E.B.; Hacker, S.; Kennedy, C.; Koch, E.W.; Stier, A.C.; Silliman, B.R. The value of estuarine and coastal ecosystem services. *Ecol. Monogr.* **2011**, *81*, 169–193. [CrossRef]
32. Fanini, L.; Costa, L.L.; Zalmon, I.R.; Riechers, M. Social and ecological elements for a perspective approach to citizen science on the beach. *Front. Ecol. Evol.* **2021**, *9*, 694487. [CrossRef]
33. Harris, L.R.; Defeo, O. Sandy shore ecosystem services, ecological infrastructure, and bundles: New insights and perspectives. *Ecosyst. Serv.* **2022**, *57*, 101477. [CrossRef]
34. Felipe-Lucia, M.R.; Comín, F.A.; Escalera-Reyes, J. A framework for the social valuation of ecosystem services. *Ambio* **2015**, *44*, 308–318. [CrossRef]
35. Cinner, J. How behavioral science can help conservation. *Science* **2018**, *362*, 889–890. [CrossRef]
36. Bennett, N.J.; Roth, R.; Klain, S.C.; Chan, K.; Christie, P.; Clark, D.A.; Cullman, G.; Curran, D.; Durbin, T.J.; Epstein, G.; et al. Conservation social science: Understanding and integrating human dimensions to improve conservation. *Biol. Conserv.* **2017**, *205*, 93–108. [CrossRef]
37. Kiss, B.; Sekulova, F.; Hörschelmann, K.; Salk, C.F.; Takahashi, W.; Wamsler, C. Citizen participation in the governance of nature-based solutions. *Environ. Policy Gov.* **2022**, *32*, 247–272. [CrossRef]
38. Toth, F.L. Dealing with surprises in environmental scenarios. In *Environmental Futures: The Practice of Environmental Scenario Analysis*; Alcamo, J., Ed.; Elsevier: Amsterdam, Netherlands, 2008; Volume 2, pp. 169–193.
39. Lucas, C.; Warman, R. Disrupting polarized discourses: Can we get out of the ruts of environmental conflicts? *Environ. Plan. C Politics Space* **2018**, *36*, 987–1005. [CrossRef]
40. Sibony, O. *You're about to Make a Terrible Mistake!: How Biases Distort Decision-Making and What You Can Do to Fight Them*; Swift Press: New York, NY, USA, 2021.
41. Catalano, A.S.; Redford, K.; Margoluis, R.; Knight, A.T. Black swans, cognition, and the power of learning from failure. *Conserv. Biol.* **2018**, *32*, 584–596. [CrossRef] [PubMed]
42. Redford, K.H.; Groves, C.; Medellin, R.A.; Robinson, J.G. Conservation stories, conservation science, and the role of the intergovernmental platform on biodiversity and ecosystem services. *Conserv. Biol.* **2012**, *26*, 757–759. [CrossRef] [PubMed]
43. Green, S.J.; Grorud-Colvert, K.; Mannix, H. Uniting science and stories: Perspectives on the value of storytelling for communicating science. *Facets* **2018**, *3*, 164–173. [CrossRef]
44. Gross, L.; Hettinger, A.; Moore, J.W.; Neeley, L. Conservation stories from the front lines. *PLoS Biol.* **2018**, *16*, e2005226. [CrossRef] [PubMed]
45. Sundin, A.; Andersson, K.; Watt, R. Rethinking communication: Integrating storytelling for increased stakeholder engagement in environmental evidence synthesis. *Environ. Evid.* **2018**, *7*, 6. [CrossRef]
46. Edward, A.D.İ.E. Training Children Environmentalists in Africa: The Learning by Drama Method. *Int. J. Environ. Pollut. Environ. Model.* **2019**, *2*, 122–128.
47. Margoluis, R.; Stem, C.; Salafsky, N.; Brown, M. Using conceptual models as a planning and evaluation tool in conservation. *Eval. Program Plan.* **2009**, *32*, 138–147. [CrossRef]
48. Thomas, R.E.; Teel, T.; Bruyere, B.; Laurence, S. Metrics and outcomes of conservation education: A quarter century of lessons learned. *Environ. Educ. Res.* **2019**, *25*, 172–192. [CrossRef]
49. Smith, E.P.; Orvos, D.R.; Cairns, J., Jr. Impact assessment using the before-after-control-impact (BACI) model: Concerns and comments. *Can. J. Fish. Aquat. Sci.* **1993**, *50*, 627–637. [CrossRef]
50. Battisti, C. Unifying the trans-disciplinary arsenal of project management tools in a single logical framework: Further suggestion for IUCN project cycle development. *J. Nat. Conserv.* **2018**, *41*, 63–72. [CrossRef]