

Full Paper

Triage by Conservation: Prioritising the Treatment of Oiled Wildlife in New Zealand by Conservation Status

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Abstract: The conservation status of wildlife in New Zealand is categorised by two different classification systems; the globally recognised International Union for Conservation of Nature (IUCN) system and the nationally recognised New Zealand Department of Conservation system. Both systems are used to give species at risk of oiling in New Zealand a prioritisation rating for treatment and rehabilitation in the event that multiple species are affected by an oil spill. Triage by medical urgency remains important and would occur in conjunction with 'triage by conservation' during any oiled wildlife response. As is typical of most island nations, native fauna of New Zealand exhibits a high degree of endemism. In addition, approximately 60% of New Zealand's coastal bird species are of significant conservation concern. These two factors provide sound justification for the prioritisation of different species during oiled wildlife response based on their population conservation status. In summary, when resources are stretched during oiled wildlife response in New Zealand, all affected species that are considered to be either 'threatened' or 'at risk' by the Department of Conservation system and/or 'vulnerable', 'endangered' or 'critically endangered' by the IUCN classification system will be afforded a higher priority for treatment and rehabilitation than affected species that are of less conservation concern.

Introduction

Oiled wildlife response is often constrained by time (the temporal window of opportunity within which a response is feasible) and resources (the available equipment and personnel).

During any oil spill, the ideal oiled wildlife response would be to treat and rehabilitate all affected individuals. However, more realistically, where significant numbers of wildlife across multiple species are affected, time and resources will limit the outcome to some extent.

For this reason, oiled wildlife response preparedness should carefully consider the allocation of time and resources to maximise benefits to wildlife. A system of 'triage by conservation' has been adopted by New Zealand to address this need.

Triage

In a medical context, triage is defined as the allocation of limited resources for the greatest good for the largest number of patients (Kennedy et al. 1996). Triage in this context is well established during veterinary assessment in oiled wildlife response.

Here we introduce the notion of triage by conservation status, whereby the most threatened species are afforded the highest priority for treatment and rehabilitation. Medical triage remains important and we suggest that both types of triage occur concurrently during oiled wildlife response.

For the majority of oiled wildlife this means an initial triage by conservation status, followed closely by triage by medical urgency. However, for wildlife with obvious critical injuries or debilitations (for which a delay in medical treatment may have significant animal welfare issues), we suggest triage by medical urgency in the first instance.

To facilitate this process the following key elements are necessary:

1. Field teams are supervised by personnel who can readily identify local species.
2. As individuals are captured, the 'species' name is recorded on a 'wildlife collection tag' which is attached to each transport box.
3. Triage by conservation and medical urgency will begin at the Shoreline Staging Site where individuals in transport boxes will be grouped according to species. Critically injured wildlife will also be identified at the staging site when possible.
4. Field stabilisation and subsequent transport to the treatment facility can then be prioritised for species with significant conservation status and any critically injured wildlife.
5. At the treatment facility the attending veterinarian, after addressing the critically injured wildlife will then begin 'medical triage' within groups of species with the highest conservation priorities.
6. After which 'medical triage' can begin on those species with lower conservation priorities.
7. High conservation species will be prioritised throughout the remainder of the response; being fed and medicated before species of lower conservation status to minimise the transfer of disease to threatened species.

Pre-determined priorities for treatment and rehabilitation

Triage by conservation is particularly relevant for a small island nation such as New Zealand, which exhibits a high degree of endemism, and has a large proportion of threatened coastal and marine species.

Two conservation status classification systems are employed here to determine priorities for the treatment and rehabilitation of oiled wildlife, they are: the New Zealand Threat Classification System (Figure 1, Townsend et al 2008), and the IUCN Red List of Threatened Species™ (Figure 2, IUCN 2001).

The following categories have been developed to guide the prioritisation of different species during oiled wildlife response. Note that at the time of an oil spill local species

information is also required to refine this process, e.g. seasonal distribution, life history phase etc.

Category 1: First priority for treatment and rehabilitation

Species with a New Zealand Threat Classification and/or IUCN Red-list classification of critically endangered, endangered or vulnerable. These are ranked from 1A to 1G for further prioritization using the New Zealand Threat Classification system.

- 1A Nationally critical
- 1B Nationally endangered
- 1C Nationally vulnerable
- 1D Declining
- 1E Recovering
- 1F Relic
- 1G Naturally uncommon

Category 2: Second priority for treatment and rehabilitation

Species which are endemic to New Zealand, without a NZ Threat Classification, and not considered 'threatened' by the IUCN Red-list classification.

Category 3: Third priority for treatment and rehabilitation

Migratory species, without a NZ Threat Classification, and not considered 'threatened' by the IUCN Red-list classification. Sub-category 3A – is used analogously for irregular migrants.

Category 4: Fourth priority for treatment and rehabilitation

Native species, without a NZ Threat Classification, and not considered 'threatened' by the IUCN Red-list classification.

Category 5: Fifth priority for treatment and rehabilitation

Introduced species, without a NZ Threat Classification, and not considered 'threatened' by the IUCN Red-list classification.

Regional governance of New Zealand is overseen by 16 'regional councils', each has a statutory obligation to maintain a regional oil spill contingency plan. In these plans all coastal and sea bird species are listed along with their pre-determined priority for treatment and rehabilitation during oiled wildlife response. Hence this information is readily available at the time of an oil spill event.

For example

The following scenario demonstrates how treatment would be prioritised for threatened species in a typical New Zealand coastal setting.

A significant oil spill occurs on Auckland's north-east coast and the following oiled individuals are captured by shore-based field teams:

| Priority for treatment & rehabilitation | Species | NZ conservation status | International conservation status | Number impacted & captured |
|---|--|---------------------------------|-----------------------------------|----------------------------|
| 1A | New Zealand dotterel, <i>Charadrius obscurus</i> | Nationally critical, Endemic | Endangered | 5 |
| 1E | Little blue penguin, <i>Eudyptula minor</i> | Declining, Native | Least concern | 12 |
| 2 | Pied oystercatchers, <i>Haematopus ostralegus</i> | Not listed, but endemic | Least concern | 4 |
| 3 | Bar-tailed godwit, <i>Limosa lapponica</i> | Not listed, Migrant | Least concern | 9 |
| 5 | Black swan, <i>Cygnus atratus</i> | Not listed, Introduced | Least concern | 2 |

The field teams arrive back to the Shoreline Staging Site at approximately the same time carrying birds in transport boxes. Species information was recorded onto 'wildlife collection tags' at the time of capture, hence transport boxes are grouped according to species at the staging site to await transport to the nearby treatment facility where stabilisation and treatment will occur. During capture two godwits were also found to have critical injuries. These birds were identified as being critically injured on their 'wildlife collection tags'.

Initially only one vehicle is available for transporting birds and it can only carry 16 transport boxes at any one time. The first consignment therefore prioritises transport for the critically injured birds, the dotterels and the majority of penguins. The second vehicle, which arrives 30 minutes after the first has departed for the treatment facility, takes all the remaining animals.

By the time the second vehicle reaches the treatment facility the attending veterinarian has stabilised the two critically injured godwits and has stabilised and medically triaged all the dotterels and is half way through the penguins. Once stabilisation and triage is completed for the penguins, the veterinarian begins on the remaining individuals in the following order: oystercatchers, godwits then finally swans.

These priorities exist throughout the remainder of the response until rehabilitated animals are released. For instance, where the number of rehabilitation pools is limited, access to these pools is prioritised for threatened species over lower priority species. It should also be noted that during a very large spill in which large numbers of species are affected and resources are overwhelmed, priority 5 species may be immediate candidates for euthanasia in an effort to free up resources for higher priority species.

References

IUCN. (2001). *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK. ii + 30 pp. (www.iucnredlist.org)

Kennedy, K., Aghababian, R.V., Gans, L. and C.P. Lewis. 1996. Triage: Techniques and applications in decisionmaking. *Annals of Emergency Medicine* 28(2): 136-144

Townsend, A.J., de Lange, P.J., Duffy, C.A.J., Miskelly, C.M., Molloy, J., and D.A. Norton. 2007. New Zealand Threat Classification System manual. Department of Conservation, Wellington. 35 p.

Acknowledgements

Funding for this work was provided by Maritime New Zealand.

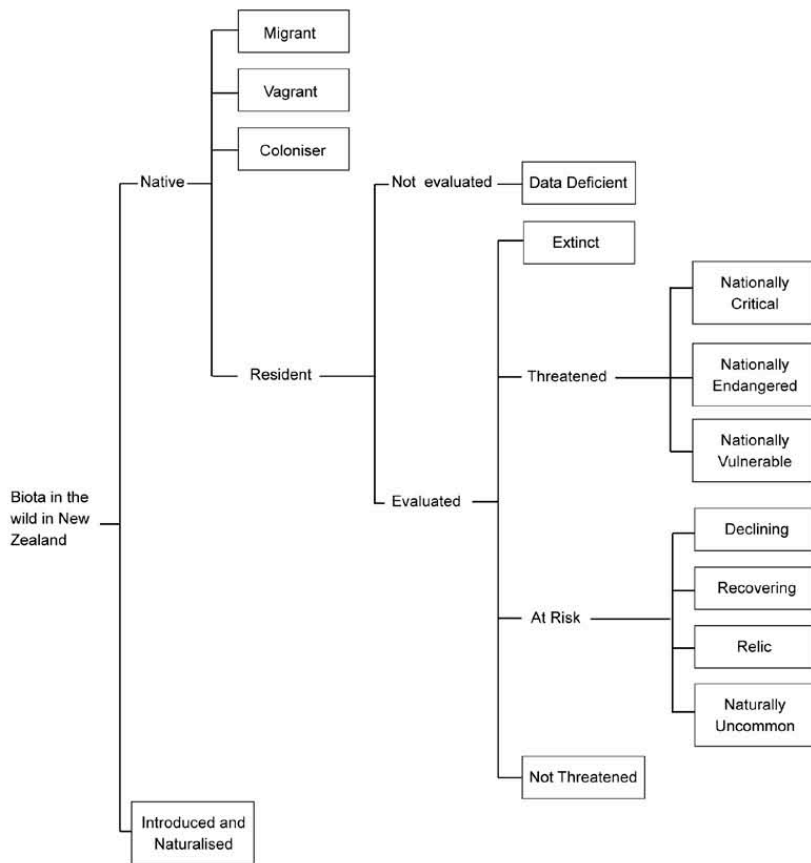


FIGURE 1 – Diagrammatic representation of the New Zealand Threat Classification System (source Townsend et al 2007)

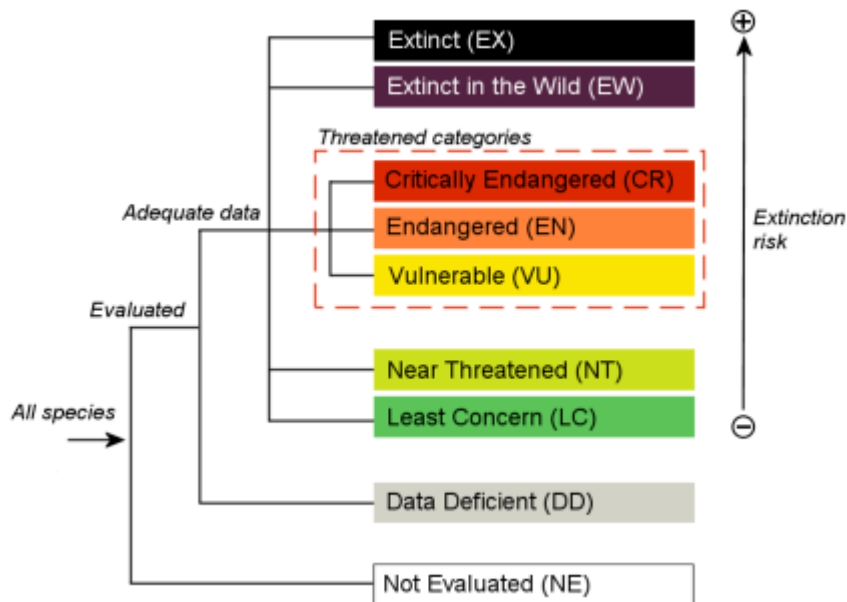


FIGURE 2 – Diagrammatic representation of the IUCN Red-list Classification System (source www.iucnredlist.org)