

Supporting Information

Chadès *et al.* 10.1073/pnas.0805265105

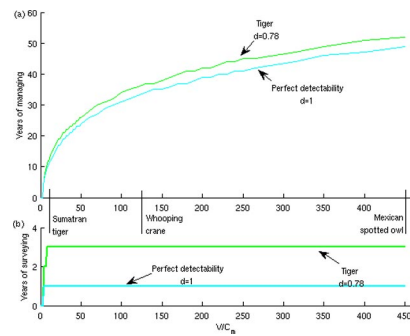


Fig. S1. Comparison of optimal resource allocation for (a) managing and (b) surveying, using exact solution for the Sumatran tiger and a hypothetical species more threatened than the tiger. p_0 represents the local probability of persistence if we do nothing, p_m is the local probability of persistence if we manage. When the species is severely threatened, it never is optimal to survey, regardless of the value of the species or cost of management.

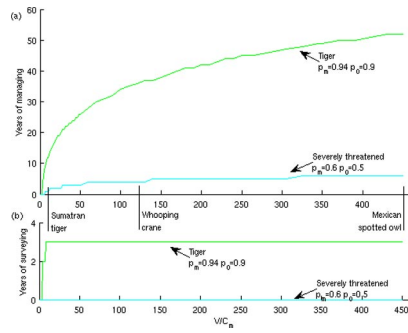


Fig. S2. Comparison of optimal resource allocation for (a) managing and (b) surveying of exact solution of the Sumatran tiger relative to cost of managing for different values of detectability (d). When detectability is perfect, we survey only once before surrendering (species absent) or managing (species present).

Table S1. Parameters for Sumatran tigers in Kerinci Seblat National Park: Extinction risk, probability of detection, economic values

Variable	Description	Value
p_{en}	Local probability of extinction $P(\text{extinct} \text{extant, survey or nothing})$	0.1
p_o	Local probability of persistence $P(\text{extant} \text{extant, survey or nothing})$	0.9
p_{em}	Local probability of extinction if managed $P(\text{extinct} \text{extant, manage})$	0.05816
p_m	Local probability of persistence if managed $P(\text{extant} \text{extant, manage})$	0.94184
d_o	Local probability of detection $P(\text{present} \text{extant, manage or nothing})$	0.01
d	Local probability of detection if surveyed $P(\text{present} \text{extant, survey})$	0.78193
V	Estimated economic value of the species ($\text{\$}\cdot\text{yr}^{-1}$)	175,133
C_m	Estimated cost of managing ($\text{\$}\cdot\text{yr}^{-1}$)	18,784
C_s	Estimated cost of surveying ($\text{\$}\cdot\text{yr}^{-1}$)	10,840

Data are from M.L., unpublished data, and [SI Appendix](#).

Table S2. Examples of cryptic species values (V) and cost of management (C_m)

Species (<i>SI Appendix</i> ref.)	Cost of management (type)	Value of the species (how determined)	V/C _m
Sumatran tiger*	\$18,784 (reserve security service)	\$175,133 (funds raised)	9
Whooping crane (2)	\$4.0265 million (recovery plan)	\$4,800,000 (WTP see <i>SI</i> section v)	265
Sri Lanka elephants (3)	(payments for ecosystem service)	\$0.5 billion (WTP US residents)	124
Southern sea otters (5, 6)	\$510,985 (recovery plan)	(WTP Sri Lanka residents)	2
Western population of Steller sea lion (7, 8)	\$14,347,500 (recovery plan)	\$2.14 million (non-market value estimates)	4
Mexican spotted owl (4)	\$4 million (recovery plan, habitat purchase)	\$5.8 billion (WTP US residents)	404
		\$1.8 billion (WTP US residents)	450

Data are from Cassandra AR (2005) pomdp-solve: POMDP solver software.

Other Supporting Information Files

[SI Appendix](#)