

next global biodiversity targets. Henrique M Pereira^{1*}, Jayne Belnap², Neil Brummitt³, Ben Collen⁴, Hui Ding⁵, Mario Gonzalez-Espinosa⁶, Richard D Gregory⁷, João Honrado⁸, Rob HG Jongman⁹, Romain Julliard¹⁰, Louise McRae⁴, Vânia Proença¹, Patrícia Rodrigues¹, Michael Opige¹¹, Jon P Rodriguez¹², Dirk S Schmeller¹³, Chris van Swaay¹⁴, and Cristiana Vieira⁸

¹Universidade de Lisboa, Portugal
 *(hpereira@fc.ul.pt); ²US Geological Survey, US; ³Natural History Museum, UK; ⁴Zoological Society of London, UK; ⁵Ministry of Environmental Protection, China; ⁶El Colegio de la Frontera Sur, Mexico; ⁷Royal Society for the Protection of Birds, UK; ⁸Universidade do Porto, Portugal; ⁹Alterra, Netherlands; ¹⁰Muséum National d' Histoire Naturelle, France; ¹¹Nature Uganda, Uganda; ¹²Instituto Venezolano de Investigaciones Científicas, Venezuela; ¹³CNRS, France; ¹⁴Vlinderstichting, Netherlands

Butchart SHM, Walpole M, Collen B, et al. 2010. Global biodiversity: indicators of recent declines. *Science* 328: 1164–68.
 Collen B, Loh J, Whitmee S, et al. 2009. Monitoring change in vertebrate abundance: the Living Planet Index. *Conserv Biol* 23: 317–27.
 Gregory RD, van Strien A, Vorisek P, et al. 2005. Developing indicators for European birds. *Philos T R Soc B* 360: 269–88.
 Hitch A and Leberg P. 2007. Breeding distributions of North American bird species moving north as a result of climate change. *Conserv Biol* 21: 534–39.
 Levrel H, Fontaine B, Henry PY, et al. 2010. Balancing state and volunteer investment in biodiversity monitoring for the implementation of CBD indicators: a French example. *Ecol Econ* 69: 1580–86.
 van Swaay C, Van Strien AJ, Harpke A, et al. 2010. The European butterfly indicator for grassland species. Wageningen, Netherlands: De Vlinderstichting.

doi:10.1890/10.WB.23



Costs and benefits of ivory-billed woodpecker “re-discovery”

Several years ago, the purported re-discovery of the ivory-billed woodpecker (*Campephilus principalis*) in eastern Arkansas generated lively discussion in renowned scientific journals. The debate concerned both the central question of whether the bird videotaped in April 2004 really was an ivory-billed woodpecker (eg Fitzpatrick et al. 2005; Sibley et al. 2006) and the controversy around the resulting species recovery plan and its costs (McKelvey et al. 2008; Dalton 2010): was \$14 million pointlessly spent?

In Sweden, much more money has already been allocated toward another species of woodpecker (white-backed woodpecker, *Dendrocopos leucotos*) – one that is not even considered threatened in Europe. Cumulatively between 2005 and 2008, over \$25 million was assigned for the recovery of this species, and continued investment is expected in the near future. Even if a single-species conservation approach may be criticized – particularly when such a large sum of money is involved – Swedes seem to accept the value of the umbrella species concept (sensu Roberge and Angelstam 2004). Woodpecker conservation is most often related to large-scale forest habitat protection and restoration, and white-backed woodpecker recovery efforts should consequently benefit over 200 threatened organisms associated with this species' habitat.

In the case of the ivory-billed woodpecker, funding was mostly used

for habitat preservation (Dalton 2010), namely that of the highly contracted lowland primary forests of the southeastern US. This implies that the monetary support may have benefited many other species as well. Therefore, even if the chances for the (assumed extant) ivory-billed woodpecker's population recovery remain slim, we do not think the amount spent was “wasted”. However, a multi-species cost–benefit analysis could help to better quantify this assertion.

Grzegorz Mikusinski^{1,2*},
 Malgorzata Blicharska², and
 Peter WJ Baxter³

¹Grimsö Wildlife Research Station, Department of Ecology, Swedish University of Agricultural Sciences, Riddarhyttan, Sweden
 *(grzegorz.mikusinski@ekol.slu.se);
²School of Forest Management, Swedish University of Agricultural Sciences, Skinnskatteberg, Sweden;
³The Ecology Centre, School of Biological Sciences, The University of Queensland, St Lucia, Australia

Dalton R. 2010. Still looking for that woodpecker. *Nature* 463: 718–19.
 Fitzpatrick JW, Lammertink M, Luneau Jr MD, et al. 2005. Ivory-billed woodpecker (*Campephilus principalis*) persists in continental North America. *Science* 308: 1460–62.
 McKelvey KS, Aubry KB, and Schwartz MK. 2008. Using anecdotal occurrence data for rare or elusive species: the illusion of reality and a call for evidentiary standards. *BioScience* 58: 549–55.
 Roberge J-M and Angelstam P. 2004. Usefulness of the umbrella species concept as a conservation tool. *Conserv Biol* 18: 76–85.
 Sibley DA, Bevier LR, Patten MA, and Elphick CS. 2006. Comment on “Ivory-billed woodpecker (*Campephilus principalis*) persists in continental North America”. *Science* 311: 5767.

doi:10.1890/10.WB.24