











Tarictic Hornbill is now functionally extinct and the Polillo Tarictic Hornbill is definitely threatened. Given the novel findings about the close relationship between Masbate and Ticao hornbills, it is likely that surviving hornbills on Masbate should be regarded as Critically Endangered.

Both geo-isolates from Polillo and Masbate represent taxa that require further deliberation, since the application of the IUCN categories is unsatisfactory at a 'species' level. Five other species are retained as monotypic, and the conservation status of four hornbills is more or less retained (IUCN 2012) – all of which are threatened. This includes the Mindoro Tarictic Hornbill *P. mindorensis*, Visayan Writhed Hornbill *Rhabdotorrhinus waldeni*, Palawan Hornbill *Anthracoceros marchei* and Sulu Hornbill *A. montani*. However, there is the exception of the Mindanao Writhed Hornbill *R. leucocephalus* where a recently observed decline in the wild population suggests elevating its status from Near Threatened to Vulnerable.

### **Philippine Hornbills Conservation Programme**

The Philippine Hornbills Conservation Programme (PHCP) was developed under the auspices of the Protected Areas and Wildlife Bureau (PAWB) of the Department of Environment and Natural Resources (DENR), and is now re-launched in collaboration with the Philippine Biodiversity Conservation Foundation Inc. (PBCFI) and other national and international conservation agencies (Oliver and Wilkinson 2007). Important revisions in the current PHCP Proposed Conservation Action Plan for the next five years (2013 – 2018) are enumerated in the following section, further describing the key areas representing Regional Conservation Action Priorities (Figure 3). The renewed PHCP is accompanied by a covering Memorandum of Agreement (MOA) between DENR, Vogelpark Avifauna and the North of England Zoological Society. The '2013-2018 Action Plan' is attached as an 'annex' to the MOA, thereby also indicating the compliance and support of all signatory parties for the following priority activities. The revised PHCP includes a review of conservation status categorizations and consensually agreed conservation research and practical management interventions for all hornbill species; thereby including the new taxonomic arrangements proposed by Gonzalez (2012) and its correspondingly increased numbers of recognized taxa at both species and subspecies levels (Table 1).

**Currently proposed species (regional) conservation action priorities West Visayas Faunal Region** (in close collaboration with all existing and potential new partner agencies)

- Re-evaluate current conservation status and likely future conservation management priorities for '*P. p. ticaensis*', which taxon was formerly known only from Ticao Island (where now 'extinct'). However, following Gonzalez (2012) potential re-assignment of tarictics from the neighbouring, larger island of Masbate (formerly 'lumped' with *P. p. panini* from other West Visayan Islands) to *P. p. ticaensis*, it seems this subspecies may be still extant; albeit 'Critically Endangered'. Leastways, Paguntalan et al. (2004) reported the continuing occurrence of small numbers of tarictics in one or more badly fragmented and degraded mixed mangrove and secondary forest patches in one or more locations with this habitat in southwest Masbate.
- Assist salient local authorities to develop a new Local Conservation Area (LCA) network or similar habitat protection and restoration strategy in Masbate, together with associated development of salient conservation management plans, para-legal and other personnel training, and local community forest wardening schemes and awareness campaigns.
- Develop and extend on-going LCA developments in central-east Negros (Oriental) and extreme south-west Negros (Occidental), later extending to selected locations in west and northwest Panay Island, with a view to the increased protection of selected priority (especially non-NIPAS) terrestrial habitats (especially lowland forest, cave and wetland ecosystems) and endemic taxa.
- Complete on-going assessment of *A. waldeni* and *P. p. panini* population status (*i.e.* distribution, habitat utilization, approximate numbers and threats) in North Negros Natural Park (NNNP), as 'indicator' species for also evaluating (and hence duly strengthening) current forest management practices and protection activities in this and other NIPAS sites.
- Sustain, develop and extend existing conservation breeding programmes for *A. waldeni* and *P. p. panini* on Panay, Negros and elsewhere.
- Develop and implement properly structured reintroduction projects for *P. panini* and other threatened endemic species (possibly/hopefully including *A. waldeni*) in selected 'vacant' habitats on both Negros and Panay Islands, with a view to also strengthening existing IUCN (and DENR) guidelines per add-on biodiversity conservation values (*e.g.* greatly increased protection/restoration of existing habitats and wildlife, development of local community-based wardening and other activities,

and sustainable financing mechanisms – *e.g.* local government annual budgetary allocations and other support).

- Per all of above activities: investigate and, where possible, promote increased collaboration between key local stakeholders and other salient interest groups (*e.g.* academe); whether governmental, non-governmental, corporate or private.

**Mindoro and associated offshore islands** (in close collaboration with the Mindoro Biodiversity Conservation Foundation and other salient local partner agencies)

- Sustain and develop current ‘protected areas’ (including proposed new ‘LCA’ network), with development/expansion in selected priority (especially non-NIPAS) sites in Mindoro and associated islands (*e.g.* Ylin and Ambulong, but possibly extending to Lubang Island).
- Sustain and develop other biodiversity conservation-related activities, including local public education/awareness campaigns, teacher-training workshops, local community wardening schemes, *etc.*
- Conduct preliminary (and more detailed follow-up) surveys in other potentially important but barely, if ever, previously explored and biologically inventoried areas (*e.g.* Mt. Malasimbo. Mt. Baco), with a view to development of future (*i.e.* second phase) biodiversity conservation development plans and strategies.
- Investigate altitudinal distribution (as well as overall range) of key ‘indicator’ species, per implications for current and future ‘protected area’ developments in this (globally critical) region.

**Polillo Islands** (in close collaboration with the Polillo Islands Biodiversity Conservation Foundation and other local partner agencies)

- Complete current NewCAPP (New Conservation Areas in the Philippines Project) project activities, including establishment of new LCAs on Patnangungan and Jomalig Islands;
- Maintain and develop all other pre-existing and on-going LCA/habitat protection and restoration activities, local awareness, personnel training and other local institutional capacity-building activities on Polillo Island.
- Investigate options for assisting continued development of proposed new network of coastal and marine protected areas (MPAs).

**Calamian Islands** (in close with the Calamian Islands Biodiversity Conservation Support Group, Katala Foundation and other local partner agencies)

- Sustain and develop Phase Two and Three activities per establishment of a new network of 10 or more LCAs in selected priority sites on



Calamianes.

- Describe new species and publish other important findings resulting from recent field site surveys per the aforementioned LCA network development programme on Busuanga and Culion Islands
- Investigate options for assisting salient authorities to enhance salient protection and restoration activities in Calauit Island Game Preserve and Wildlife Sanctuary and other key (watershed, *etc.*) sites outside the proposed new LCA network.

***Sulu Islands*** (in close collaboration Mindanao State University and other existing, and likely future partner agencies)

- Re-assess current status of *Anthracoceros montani* in Tawitawi, Batu-batu, Sanga-sanga and associated Islands (if possible also extending to Jolo and its associated islands), with a view to developing comprehensive conservation management plans for this and other key threatened endemic taxa.
- Conduct preliminary surveys on Sibutu Island (extreme southwest Philippines), which has seldom been explored biologically. This is of considerable potential interest as a separate late Pleistocene isolate, with likely strong faunal associations with Borneo, and such surveys also to be conducted with a view to formulation of follow-up conservation measures.
- Promote and develop local education-awareness campaigns, local personnel training and other institutional capacity-building schemes.

***Greater Mindanao and associated ‘higher conservation priority’ islands*** (in close collaboration with salient local partner agencies – both governmental and non-governmental in each location)

- Camiguin Sur: To sustain and develop on-going field research, protected area (Mt. Timpoong - Mt. Hibok-Hibok Natural Monument) development and associated personnel training, local awareness campaigns, *etc.*; this island is of particular importance as a Pleistocene isolate, with several, new single-island endemic species so far described, plus as yet unexplained hiatuses (despite its close proximity to the Mindanao mainland) in the distribution of key regional endemics (*e.g.* *R. leucopcephalus* is present, but both *B. mindanensis* and *P. affinis* are absent).
- Dinagat and associated islands (*i.e.* Siargao and Bucas Grande): To conduct follow-up surveys and networking consultations with a view to the proposed development of a possible new LCA network of ‘protected areas’ on Dinagat Island, as a matter of some urgency; Dinagat-Siargao-Bucas Grande seemingly form a sub-center of species endemism within

the ‘Greater Mindanao Faunal Region’, likewise characterized by the occurrence of increasing numbers of new ‘single island (or ‘Dinagat/Siargao/Bucas Grande only) endemic species, and similar absences of some other species (e.g. Philippine rusa, *Rusa marianus*), although all three Greater Mindanao hornbills, *B. mindanensis*, *P. affinis*, and *R. leucocephalus* are not only present, but this island constitutes the northernmost extension of their respective ranges. Unfortunately, however, Dinagat (wherein most native forest still remains) was long ago declared a mining reserve and virtually all remaining forested areas are now threatened by DENR-licensed mining claims, several of which are already active.

- Basilan Island: Unfortunately, Basilan (like Jolo and associated islands in east Sulu Archipelago) has been effectively off-limits to scientific research and associated conservation-related for the past half-century or so. This circumstance has naturally prompted increased concerns regarding current conservation status and future survival prospects of key hornbill and other various threatened (local and regional) endemic species populations; a situation now exacerbated by Gonzalez’s (2012) separation of *P. basilanicus* as a single island endemic species. Whilst it is apparently unlikely that any concerted conservation interventions will be feasible in the near future, efforts should be made to acquire updated status data regarding this and key other species’ populations, whilst also investigating any other feasible means of promoting increased local interest and concern per the future survival prospects of these taxa.

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**Table 1.** List of Asian Hornbills with proposed taxonomic changes based on Gonzalez et al. (2013a, 2013b) and Gonzalez et al. (in prep.), with emphasis on Philippine taxa.

Former Name	Former Threat Status	Proposed Name Change	Proposed Threat Status Change
<i>Anorrhinus tickelli</i>	Critically Endangered		
<i>Anorrhinus austeni</i>	Critically Endangered		
<i>Anorrhinus galeritus</i>	Critically Endangered		
<i>Ocyceros griseus</i>	Least Concern		
<i>Ocyceros gingalensis</i>	Least Concern		
<i>Ocyceros birostris</i>	Least Concern		
<i>Anthracoceros coronatus</i>	Critically Endangered		
<i>Anthracoceros albirostris</i>	Critically Endangered		
<i>Anthracoceros marchei</i>	Vulnerable		
<i>Anthracoceros malayanus</i>	Critically Endangered		
<i>Anthracoceros montani</i>	Critically Endangered		
<i>Buceros bicornis</i>	Critically Endangered		
<i>Buceros rhinoceros</i>	Near Threatened		
<i>Buceros hydrocorax hydrocorax</i>	Near Threatened	<i>Buceros hydrocorax</i>	Vulnerable
<i>Buceros hydrocorax mindanensis</i>	Near Threatened	<i>Buceros mindanensis</i>	Vulnerable
<i>Buceros hydrocorax semigaelatus</i>	Near Threatened		
<i>Rhinoplax vigil</i>	Least Concern	<i>Rhinoplax vigil</i>	
<i>Penelopides exarhatus</i>	Least Concern	<i>Rhabdotorrhinus exarhatus</i>	
<i>Penelopides panini panini</i>	Least Concern		IUCN category unsatisfactory at 'species' level

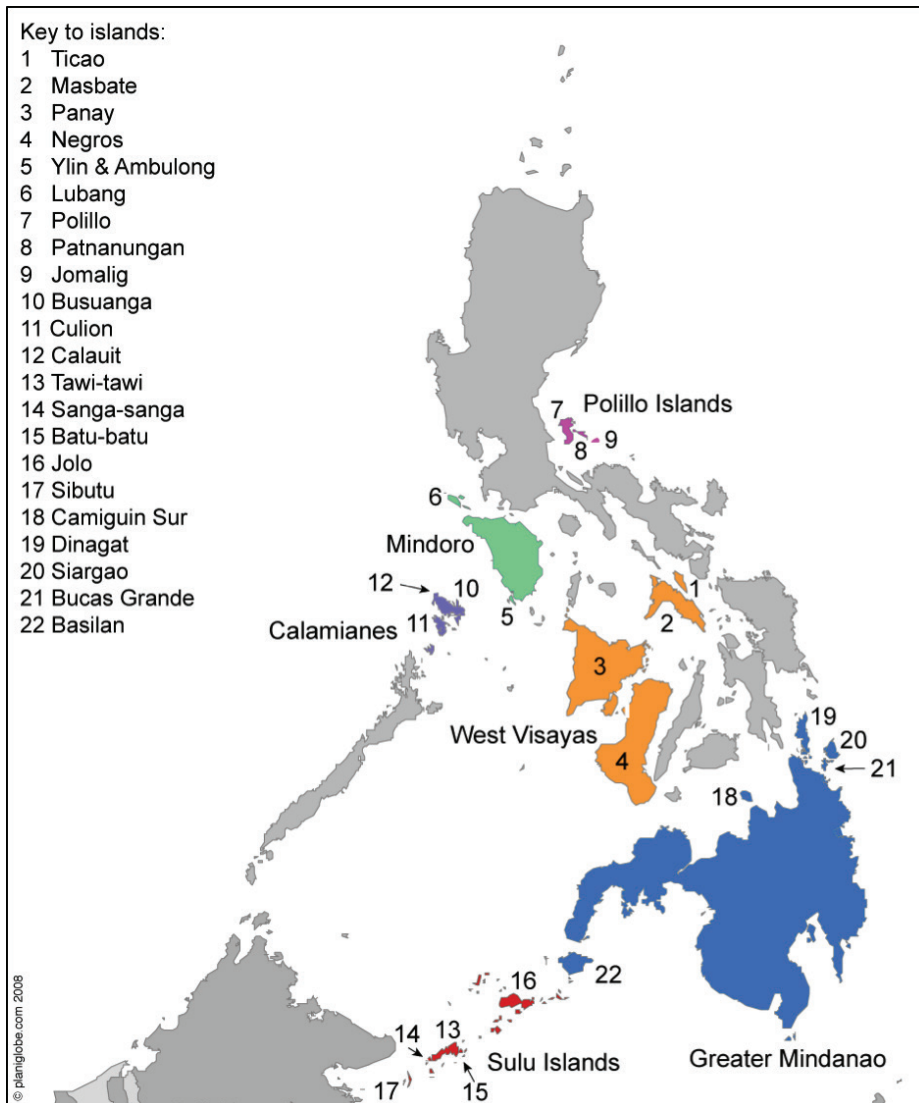
<b>Former Name</b>	<b>Former Threat Status</b>	<b>Proposed Name Change</b>	<b>Proposed Threat Status Change</b>
<i>Penelopides panini ticaensis</i>	Least Concern		
<i>Penelopides manillae manillae</i>	Least Concern		IUCN category unsatisfactory at 'species' level
<i>Penelopides manillae subniger</i>	Least Concern		
<i>Penelopides affinis affinis</i>	Least Concern	<i>Penelopides affinis</i>	Near-threatened
<i>Penelopides affinis samarensis</i>	Least Concern	<i>Penelopides samarensis</i>	Near-threatened
<i>Penelopides affinis basilanicus</i>	Least Concern	<i>Penelopides basilanicus</i>	'Data Deficient', but most likely 'Endangered'
<i>Penelopides mindorensis</i>	Least Concern		
<i>Bericornis comatus</i>	Critically Endangered		
<i>Aceros nipalensis</i>	Near Threatened		
<i>Aceros corrugatus</i>	Least Concern	<i>Rhabdotorrhinus corrugatus</i>	
<i>Aceros leucocephalus</i>	Near Threatened	<i>Rhabdotorrhinus leucocephalus</i>	Vulnerable
<i>Aceros waldeni</i>	Critically Endangered	<i>Rhabdotorrhinus waldeni</i>	
<i>Aceros cassidix</i>	Least Concern	<i>Rhyticeros cassidix</i>	
<i>Rhyticeros narcondami</i>	Least Concern		
<i>Rhyticeros plicatus</i>	Least Concern		
<i>Rhyticeros subruficollis</i>	Least Concern		
<i>Rhyticeros undulatus</i>	Least Concern		
<i>Rhyticeros everetti</i>	Least Concern		



**Figure 1.** World map showing the distribution of extant and extinct hornbills across Africa and Asia (adapted from Kinnaird and O'Brien 2007).



**Figure 2.** Some threatened and endemic Philippine hornbills: (1) Visayan Writhed Hornbill *Rhabdotorrhinus waldeni* (Critically Endangered); (2) Great Mindanao Hornbill *Buceros mindanensis* proposed as Vulnerable; (3) Mindoro Tarictic Hornbill *Penelopides mindorensis* (Endangered); and (4) Palawan Hornbill *Anthracoceros marchei* (Vulnerable).



**Figure 3.** Map of the Philippines with emphasis on inclusive islands for proposed regional conservation action priorities based on revised Philippines Hornbills Conservation Programme (PHCP) 2013–2018.