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**Conservation Brief for the CMS/AEWA International
Single Species Action Plan for the Conservation of the
Madagascar Pond-heron**

Ardeola idae

Agreement on the Conservation of African-Eurasian
Migratory Waterbirds (AEWA)

**Conservation Brief for the CMS/AEWA International
Single Species Action Plan for the Conservation of the
Madagascar Pond-heron**

Ardeola idae

(To be used in conjunction with the ISSAP published in April 2007 – please access [here](#))

May 2022

**Produced by the AEWA Technical Committee
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Affairs, United Kingdom*

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OVERVIEW AND SUMMARY

The International Single Species Action Plan (ISSAP) for the conservation of the Madagascar Pond-heron was published in December 2008 as a joint plan of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) and the Convention on Migratory Species (CMS). The 7th session of the Meeting of the Parties to AEWA in 2018 requested the AEWA Technical Committee to produce a shorter conservation brief for this ISSAP, since it was lacking an international coordination mechanism, in order to highlight any new scientific information and/or threats as well as to boost implementation and re-engage relevant range states. This Conservation Brief shall be used in conjunction with the full ISSAP.

Madagascar Pond Heron *Ardeola idae* is globally Red Listed as Endangered because it has a very small population which has undergone a continuing decline as many of its breeding colonies are heavily disturbed and exploited for eggs and young. This exploitation is exacerbated by pressures on its wetland habitats. The population was estimated to be roughly 1,300-4,000 mature individuals (T. Dodman *in litt.* 2002). However, by 2016 it was estimated to have reduced to only 812 breeding individuals in Madagascar with continuing declines (Rabarisoa et al. 2020). The recently discovered breeding population on Mayotte (France) is thought to be increasing while small breeding populations still nest on Aldabra (Seychelles) and Europa (France). The population is believed to be largely migratory spending the non-breeding period (approx. April to October) in Eastern Africa, with the majority of recent records from Kenya and Tanzania. However, surveys recently have identified substantial numbers remaining in Madagascar at this time, as well as on the other islands where they breed.

The major threats and provisions in the International Species Action Plan published in 2008 remain valid. An important paper recently published (Rabarisoa *et al.* 2020) has summarised the current status in the breeding range. Since 2016 monitoring has continued annually on Madagascar and some important conservation interventions have occurred. Several wetlands with populations of the heron have been designated as protected areas or listed as Ramsar sites. In addition, a GEF project implemented through the Government since 2018 has focused actions on the heron and its key habitats. This has resulted in greater protection at some sites, more interaction to assist local communities in protecting the species and its habitats, and some resources for continued monitoring. This has enabled confirmation of three new breeding sites and recorded some modest increases at others. NGO's including the national NGO ASITY Madagascar, the Peregrine Fund and Durrell Wildlife Conservation Trust have assisted with this work. There has been more work also on Mayotte led by the NGO Groupe d'étude et de protection des oiseaux de Mayotte (GEPOMAY) through a European Union LIFE project covering a suite of French Overseas Departments. This has included some enhanced site protection, and populations continue to increase.

The major new threat identified by conservationists is the impact of climate change, especially with the drying out and consequent reduction in size of wetlands. This was especially noted in SW Madagascar where few herons now remain. There is still no proven case of hybridisation with the more abundant Squacco Heron *Ardeola ralloides* but it is an important concern and warrants additional research. A small captive population of up to 73 Madagascar Pond Heron has been established at zoos in Germany and the US. This could provide an important safeguarded population in the event of further declines.

Key priorities for this species are considered to be:

- Seeking greater protection for all key breeding sites, especially from disturbance and degradation;
- Increasing the number and range of projects engaging local communities, especially in the remaining unprotected breeding sites, where community managed conservation areas are a practical way forward. Such projects will increase awareness, encourage less disturbance and persecution of breeding birds, and enable communities to engage in livelihood activities which provide greater benefits and alternatives to wetland exploitation;

- Habitat monitoring and restoration at other former or potential sites; and
- Ensuring regular population monitoring throughout the breeding range and in key parts of the non-breeding range

Some of the key actors in conservation of this species are already collaborating and some of them met in Madagascar in 2019. This should be formalised as an AEWA International Species Working Group to be an effective network sharing advice and information. A National Plan (2019-2023) exists for Mayotte.

1. INTRODUCTION & BASIC DATA

- Conservation Brief for the CMS/AEWA International Single Species Action Plan for the Madagascar Pond-heron *Ardeola idae*. Full Action plan at <https://www.unep-aewa.org/en/publication/international-single-species-action-plan-conservation-madagascar-pond-heron-ts-no-39>
- Compiled by Paul Buckley. Additional experts contributing: Rivo Rabarisoa and Razafindrakoto Yvette (Madagascar), Nancy Bunbury (Aldabra), Emilien Dautrey (Mayotte), Amy Maxime (Europa), Neil Baker (Tanzania), Henry Ndithia (Kenya), Roger Safford (BirdLife International), Glyn Young (Durrell Wildlife Conservation Trust)
- **Technical Committee adoption:** *Adopted by the AEWA Technical Committee in May 2022*
- **Introduction:** The original International Species Action Plan was published in 2008 and adopted at MOP4 in 2008. It was originally published with timelines for implementation through to 2018 but was extended through agreement of Resolution 7.5 at MOP 7 through the period from 2019 to 2028. Recommendations were to consider the production of this Conservation Brief, and to re-establish efforts to organise international coordination of implementation. This was proposed at the time of the ISSAP publication but never formally put into place although there has been some collaboration especially across the breeding range states.

Table 1. Review of Basic Data

Populations covered by the Plan:	Indian Ocean population (with migration to continental Africa)
AEWA Table 1 category, also indicating possible change since ISSAP adoption (Y/N – if yes, indicate new versus old listing)	Column A, 1a as included in CMS Appendix 1, 1b as Red listed (EN), 1c as <10,000 birds CMS Appendix I (since 2005) No change since Action Plan publication.
Change in global, regional and/or sub-regional Red List status (Y/N - if yes, indicate new versus old listing)	Listed as Endangered Criteria C2a(ii) due to small population and continued decline. This status remains the same as of 2022
Change in Principle Range States, i.e. countries regularly hosting over 1% of the biogeographic population (Y/N). If yes list changes per population.	2008 - Estimated 2,000-6,000 birds in breeding area, mostly Madagascar, where recorded in 41 sites, and decreasing. More stable in Mayotte possibly increasing, also Europa and Aldabra. Some birds spend whole year in Madagascar, Mayotte, Europa. Others move to Eastern Africa where there has been limited survey effort. Only substantial populations in Tanzania and Kenya according to recent records.

	2016 estimate was that the population could now be as low as 550 pairs with an estimated 812 breeding birds on Madagascar and 250 on Mayotte and Europa, although subsequent 2020 estimate of 279 pairs on Mayotte suggests a higher total. Many former colonies are now abandoned, and others have declined.
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2. ACTION FRAMEWORK REVIEW

- **Adopted International Action Plan Goal and Purpose**, including indicators and methods of verification:

Goal: To ensure favourable conservation status of the Madagascar Pond-heron (MPH).

Project purpose: Improve the current conservation status and knowledge base of the Madagascar Pond-heron within the next 10 years (note Indicators given at result level).

The table below shows the original Action Plan action framework objectives, associated problems, results and actions revised into a new template adopted at MOP7. Proposed changes in the prioritization of actions and recommendations are shown in red font.

Table 2. Review of Action Framework

<i>Objective 1: To improve the conservation status of Madagascar Pond-heron across its range</i>						
Problem	Result (and indicator)	Action	Priority	Time scale	Organisations responsible	Implementation status and recommendations
Human disturbance both intentional and accidental which affects its survival and breeding success	Result 1.1 To reduce and manage human disturbance at breeding sites (inc Result 1.3 To prevent exploitation of the species' eggs and young) (All breeding range) <i>Indicators: No unmanaged human disturbance during the presence of species at sites, especially at core areas during breeding season</i>	1.1.1. Designate key breeding sites as Ramsar sites	Essential	2026/ ongoing	Government agencies	10 new Ramsar sites in Madagascar in 2017 inc. 4 key MPH sites. Ongoing process. Also, two Ramsar Sites in Mayotte, one in Europa.
		1.1.2. Develop and implement site visitation protocol for birdwatchers at the species' sites	Low	2026	Government agencies, Conservation NGOs	No action known. Controls at individual sites and signs urging good conduct may help.
		1.1.3 Regulate access to sites during the breeding season, inc. implementing community run control of access	Essential	Ongoing	Government agencies, Conservation NGOs, community-based groups	Access is more restricted in areas now designated in Madagascar (as well as three breeding sites and one feeding site in Mayotte). Some community work done at particular project sites often managed primarily for other species.
		1.1.4 Develop or support the implementation of existing management plans at known breeding sites	Essential	Ongoing	Government agencies, Conservation NGOs	Protected Areas have or are developing management plans. Implementation varies but 6 sites in Madagascar have MPH as target

						species in their plans as well as 4 in Mayotte. Ensure these plans build in strong elements of community collaboration so that any restrictions are balanced by benefits. Continue active habitat restoration in Mayotte.
		1.1.6 Purchase some sites that hold key breeding colonies as reserves	Medium	As options arise	Government agencies, Conservation NGOs	None known
		New Action: 1.1.7 Investigate impact of introduced predators (rats) and if necessary, control/eradicate if possible (Mayotte, Europa, Aldabra)	Unknown	Urgent if impact found to be serious	Government agencies, Conservation NGOs	Impact assessments underway currently in Mayotte - level of threat being assessed.
Loss and degradation of the species' habitat	Result 1.2 To limit and reverse human activities that reduce or degrade the species' habitat (All range states but mainly breeding range) <i>Indicator: Management</i>	1.2.1. Analyse the existing habitat images to establish the temporal changes of the species' habitats in key sites using remote sensing	Medium	Ongoing	Government agencies, Conservation NGOs	Not implemented Understanding current and future impacts of climate change are relevant to all these actions
		1.2.2 Designate all breeding sites under national protected area legislation	Essential	2026	Government agencies,	5 new Ramsar Sites, 4 of which are protected areas (PAs), and one additional PA in Madagascar, protecting some key

<p><i>actions on the ground aimed at maintaining the species habitat in at least 50% of key sites in 10 years</i></p>						wetlands. Two new Ramsar sites, coastal conservation sites and Nature Reserve on Mayotte.
	1.2.3 (1.1.5) Prevent development which will reduce species' habitat	Essential	Ongoing	Government agencies, Conservation NGOs	Most 'development' threatening habitats is small scale and incremental. On such sites, focus on work with local people to deliver alternative development models which reduce threats as this may be more effective.	
	1.2.4 Implement Environmental Impact Assessment (EIA) studies in species habitats before any development	Essential	Ongoing	Government agencies, Conservation NGOs	EIA Decree in place in Madagascar, amended in 2004	
	1.2.5 Prevent harvesting of <i>Typha</i> at species' roosting sites	High	Ongoing	Government agencies, Conservation NGOs	Some protected areas and Ramsar Sites in Madagascar are developing management plans to control these types of activity	
	1.2.6 Engage communities in conservation of species' habitat through support and expansion of local	Medium Revise to Essential esp. in unprotected sites	Ongoing	Government agencies, Conservation NGOs	Some work done at particular project sites often managed primarily for other species. This is a	

		conservation groups and their activities				growing priority for remaining key sites
Limited awareness of the species, its endangered status and its conservation needs	Result 1.4 Raise the species' profile in the range states (All range states but esp breeding states) <i>Indicator: At least one new MPH site gets legal protection status in the first 5 years</i>	1.4.1 Make the status, threats and the species' priority actions more known and appreciated by the general public	Essential	Ongoing	Government agencies, Conservation NGOs	Some work done with government and at particular project sites often managed primarily for other species
		1.4.2 Develop and distribute advocacy materials and put information on websites to raise awareness about the species in the public at national and regional levels	Essential	Ongoing	Government agencies, Conservation NGOs	Some material produced funded by AEWA and through other projects inc current GEF/LIFE projects Action Plan for French territories 2010, revised 2018.
		1.4.3 Capture information about the species in field workers' reports in addition to other globally threatened, CMS/AEWA species	Medium	Ongoing	Government agencies, Conservation NGOs	Progress unknown
		1.4.4 Include the species in media campaigns together with other globally threatened, CMS/AEWA species, and in existing special events for threatened, CMS and AEWA species	High	Ongoing	Government agencies, Conservation NGOs	Some events and radio media activity funded by AEWA and through other projects inc. current GEF project

		1.4.5 Include the species in relevant stakeholder meetings at all levels, in ongoing training programmes for external and internal, staff and scientists to expand knowledge and skills	Medium Revise to High	Ongoing	Government agencies, Conservation NGOs	Some work done with government and at particular project sites often managed primarily for other species
		1.4.6 Support and expand community conservation groups and their activities	High Revise to Essential	Ongoing	Government agencies, Conservation NGOs	Some work done at particular project sites often managed primarily for other species. A remaining priority

Objective 2: To improve knowledge the status and conservation needs of Madagascar Pond-heron

Problem	Result	Action	Priority	Time scale	Organisations responsible	Implementation status
Lack of knowledge about the species population, distribution and trends	Result 2.1 To determine the actual population size and trends and undertake appropriate training in proper field identification of <i>A. idae</i> . (Including 2.3 To establish the extent of the	2.1.1. Develop identification kit and guide for herons	Medium	Completed	Government agencies, Conservation NGOs, Research institutions	This guide has been produced by Asity
		2.1.3/4 Develop a census technique and organise training in identification, survey techniques and data collection	High	Ongoing	Government agencies, Research institutions, WI	Survey methods exist and training implemented prior to surveys Good surveys in Madagascar and Mayotte (using drones). Investigate to remotely survey population on Europa, and Aldabra

species' range and distribution with a focus on identifying all breeding localities) Primarily breeding range but also activities for non-breeding range) <i>Indicator: populations and trends determined. Range and distribution mapped</i>						which is very hard to census
	2.1.2/2.3.1 Implement a field survey to identify all of the breeding sites across Madagascar	Essential	2024	Government agencies, Conservation NGOs, Research institutions	More sites have been identified and existing sites monitored where resources allow	
	2.1.5/2.3.2 Perform coordinated censuses in all countries and identify key sites in non-breeding range	Essential	Ongoing	Government agencies, Research institutions	Undertaken through IWC but surveys in most range states sporadic and not always in July GPS tags put on 11 birds in Mayotte 2020/21 and should know movements later in 2022. Seek to do this in rest of range too, esp. Madagascar Better survey in key non-breeding range would clarify the proportion of birds that migrate	
	2.3.3 Initiate/strengthen waterbird databases in range states and ensure that the Madagascar Pond-heron is included	High	Ongoing	Government agencies, Research institutions	Madagascar and Mayotte have a database of records shared with WI/AEWA. Tanzania has also. Frequent surveys in Kenya but recording is limited elsewhere	
	2.3.4 Create an international network of people and institutions	Medium Revise to High	2022	Government agencies,	Some collaboration especially among	

		interested in the Madagascar Pond-heron and share information through the network			Research institutions	breeding range states see paper in Waterbirds 2019 Some met in Madagascar 2019 Priority for formation of ISWG
		2.3.5 Encourage birdwatchers to submit records to the network	Medium	Ongoing	Government agencies, Research institutions	Limited publicity but more data may exist in online databases such as eBird
Concern over possible hybridisation with Squacco heron	Result 2.2 To determine the extent, impacts and causes of hybridisation of <i>A. idae</i> with <i>A. ralloides</i> <i>Indicator: Research outputs of scientific investigations</i>	2.2.1. Design and implement genetic studies	Essential	2026	Government agencies, Research institutions	Not implemented A remaining priority. Studies should also assess whether there is competition between the two species
Inadequate knowledge of the factors determining productivity and survival at all seasons	Result 2.4 To study the species' survival and productivity, as well as life history outside the breeding season <i>Indicator: Research</i>	2.4.1 Design and implement a scientific study	Medium	2028	Government agencies, Research institutions	Work undertaken in Madagascar and publication Ostrich 2020. More research needed. Propose a prioritised research plan to encourage additional involvement and support.
		2.4.2 Undertake population monitoring	Medium	2028	Government agencies,	

	<i>outputs of scientific investigations</i>				Research institutions	
Inadequate knowledge of the factors determining good pond heron habitat	Result 2.5 To determine the species' habitat requirements <i>Indicator:</i> <i>Research outputs of scientific investigations</i>	2.5.1 Design and implement a scientific study to research the habitat requirements of the species	Essential	Ongoing	Government agencies, Research institutions	Work on diet published (Privot and Rene de Roland 2021). Work in Mayotte in breeding mangrove and open habitat feeding areas. Work planned on Europa.
		2.5.2 Initiate a pilot programme for the creation of artificial breeding sites	Medium	2026	Government agencies, Research institutions	Not implemented

Timelines have been updated in line with the new plan period 2019-2028 where activity not completed or is ongoing.

3. BIOLOGICAL ASSESSMENT

- Madagascar Pond Heron forms a single population whose breeding range is confined entirely to Madagascar and a few surrounding islands. They are seen as a migratory population that moves to the East African mainland outside of the breeding season (approx. April to October). However, Rabarisoa (2020) offers evidence that a significant percentage of the population remains in Madagascar throughout the year (911 records from 53 sites), and they are also seen in other parts of the breeding range.
- No major changes have been reported on habitat requirements, survival or productivity. The continued decline is probably through the same causes which have yet to be arrested although some recent progress is reported (Rabarisoa *pers comm*). While there is still no clear evidence of hybridisation with Squacco Heron, this species is increasingly common in Madagascar and birds that appear to be hybrids have been reported in some wetlands.

Table 3. Population size and trend by country

Country	Breeding numbers (first row at time of ISSAP, 2 nd row most recent data)	Quality of data	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality of data	Maximum size of migrating or non-breeding populations in the last 10 years (or 3 generations)	Quality of data	Year(s) of the estimate
<i>Madagascar</i>	2 – 6,000 ¹ birds	Good estimate	2002	No data				
	Estimates ² as low as 812 breeding birds (probably a few more in other sites)	Good estimates	2016	Declining (possible stabilisation/ small increase post 2016?)				
<i>Seychelles (Aldabra)</i>	20-50 prs ¹	Guess	2001	No data		No data		
	Still present but no numbers	Guess	2016/ 2021 pers comm	Fewer sightings indicates possible decline.				
France (Mayotte)	10-20 prs ¹		2007	Possibly increasing		50-100 ¹		2007
	84 prs ² 182 prs 279 prs ³ (190 juvs) ³	Survey	2016 2018 2020	Increasing				

Country	Breeding numbers (first row at time of ISSAP, 2 nd row most recent data)	Quality of data	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality of data	Maximum size of migrating or non-breeding populations in the last 10 years (or 3 generations)	Quality of data	Year(s) of the estimate
France (Europa)	15 prs ¹	Estimate	2003	No data		10-50 ¹		2003
	10 prs ²	Estimate	2016	No data		10 ⁷	Observation	2021
Kenya						No data		
				No data		29 in 23 wetlands ⁴		2011/12
Tanzania				Decline		00's to low thousands ¹	Database records	2007
				Decline?		Database ⁵ records suggest fewer		2021
Other non-breeding countries						00's suggested in Mozambique no other data ¹		
Overall	705 pairs (update on 531 pairs)^{2,3,6}	Reasonable Estimate	2016 updated in 2021					

1 – cited in original ISSAP 2008 – original sources vary

2 – Rabarisoa et al (2020)

3 – GEPOMAY (2020)

4 – Ndithia et al (2012)

5 – Tanzania Bird Atlas

6 – cumulative total of latest minimum estimates from each country

7 – TAAF – Terres australes et antarctiques françaises (2021)

4. PROBLEM ANALYSIS

This section reviews threats identified in the original problem analysis based on possible new information and following the IUCN Red List Threat Classification Scheme¹, also noting threats no longer considered relevant for survival etc.

Table 4. Threat review

Threat (IUCN threat codes)	Identified for which population	ISSAP threat score (IUCN Threat Score)	Revised threat assessment based on new evidence, if available
Unnatural decrease in productivity			
Habitat destruction and degradation at breeding sites (2.1, 2.3, 7.2.3)	Breeding population primarily Madagascar, also Mayotte	Critical (Medium Impact 7)	Wetlands in Madagascar and Mayotte still being burnt and converted to farming. However, some new protected areas since 2016 have enabled some limited recovery
Competition for breeding sites with other herons (8.2.2)	Breeding population primarily Madagascar	Critical (Low impact 5)	Some other species increasing and a threat at smaller wetlands. Unlikely to be a key threat
Collection of eggs/fledgelings for food (5.1.1)	Breeding population primarily Madagascar	Critical (Medium Impact 6)	Reported at 73% of sites. Probably critical impact in Madagascar outside PAs
Hybridisation with Squacco herons (8.3)	Madagascar	? (Possible future impact)	Squacco heron has increased. Some indication at sites near capital but still unproven.
Disturbance at breeding sites (6.3)	Breeding population primarily Madagascar	High (Medium Impact 7)	Reported at 73% of sites – probably Critical
Unnatural increase in adult mortality			
Limited roosting sites through loss of Typha and competition with herons (5.2.2)	Breeding population primarily Madagascar	Medium (Low impact 5)	
Accidental hunting and snares (5.1.2)	Breeding population primarily Madagascar	Low (Low impact 4)	

¹ <https://www.iucnredlist.org/resources/threat-classification-scheme>

Predation by introduced species (8.1.1)	Breeding population - possibly in all breeding populations	Low (Low impact 4)?	Impact of rats on eggs and young being investigated further through LIFE BIODIV'OM project in Mayotte. Also suspected to be an issue in Europa.
Water pollution (9.3)	Breeding population primarily Madagascar	Low (Low impact 5)	No information/ need to be checked – thought to impact mangrove habitat.
Limited knowledge			
Knowledge of population status and trends (12.1)	Breeding and non-breeding population	Not ranked	An ongoing priority specially to check additional wetlands in Madagascar and assess numbers in Aldabra and Europa.
Species ecology and habitat requirements esp in non-breeding range (12.1)	Breeding and non-breeding population	Not ranked	Good to understand migrant populations better and the proportion that leave breeding countries. However limited options for conservation there

Possible new threats: The only 'new' threat identified is climate change. Some wetlands are suffering from drought (11.2) and reducing in size, especially in SW Madagascar where one site reduced from 9,000ha to 5,000ha in last 15 years (Rabarisoa pers.comm.). This is likely to be of increasing importance.

5. CONTACTS & REFERENCES

5.1. Contacts

Madagascar. Contact ASITY – Rivo Rabarisoa rivo.rabarisoa@birdlife-mada.org

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