The Candaba Wetlands: Rice Farming Communities and Migratory Birds – How They Can Co-Exist?

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Assessing Resilience Using Socio-Ecological Production Landscapes and Seascapes (SEPLS) Model: The Case of Candaba Wetlands, Philippines

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Wetlands

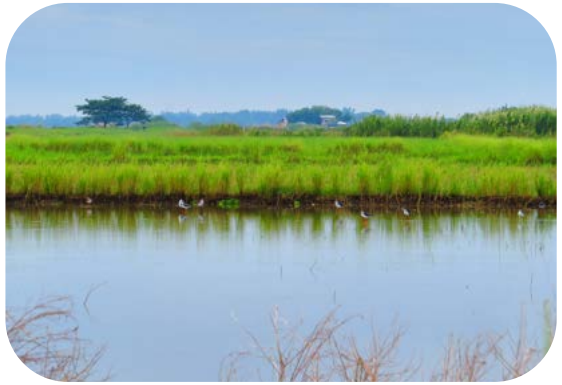
- *“areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters.”*

(Ramsar Convention, 1971)


Candaba Wetlands

Ecosystem Services

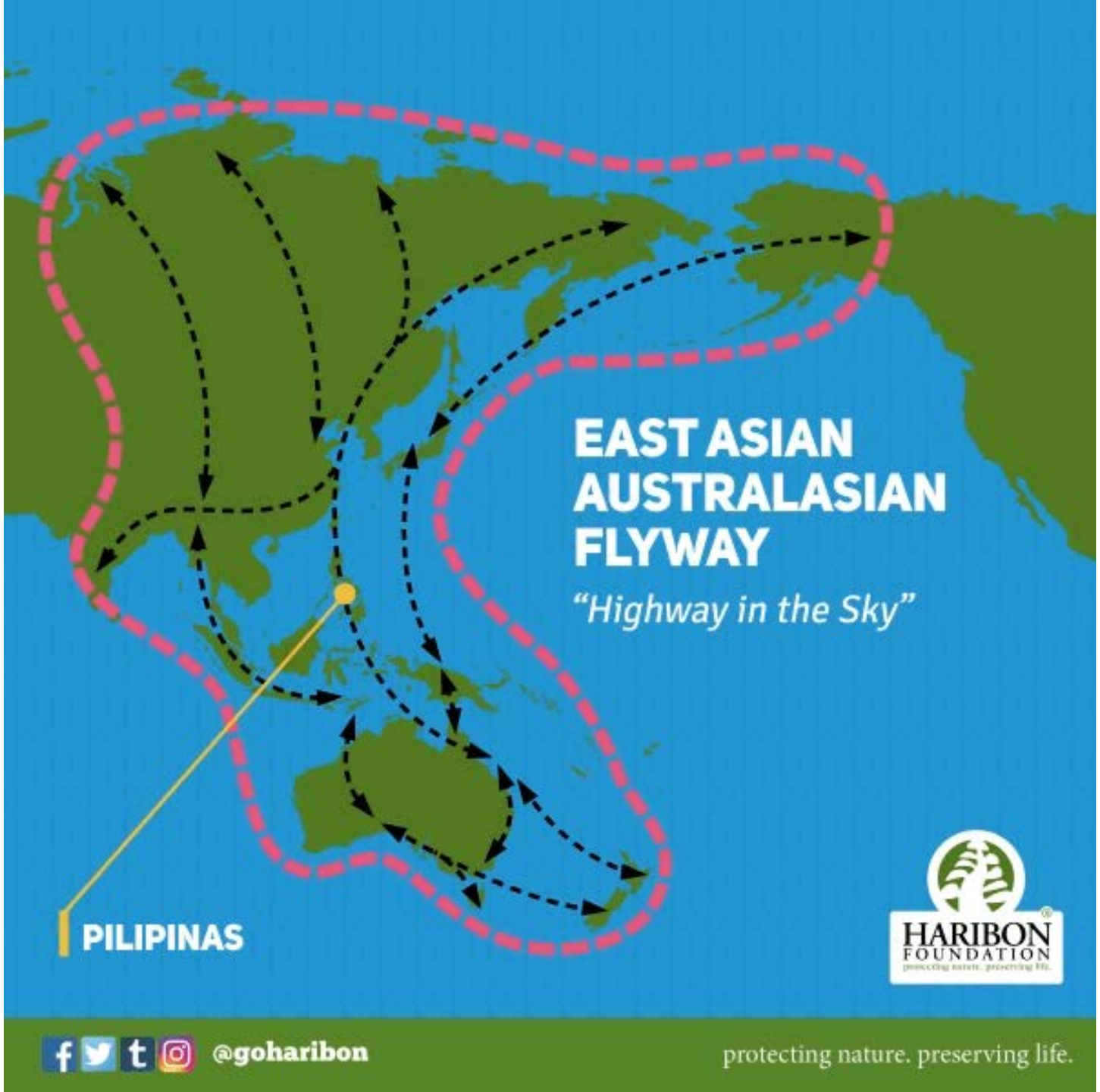
Agriculture and Fisheries



Natural Flood Retention

Biodiversity

Ecotourism


EAST ASIAN
AUSTRALASIAN
FLYWAY
"Highway in the Sky"
PILIPINAS
HARIBON
FOUNDATION
@goharibon
protecting nature. preserving life.

Avifauna

11,369 individuals

69 species

- **29** migratory
- **36** resident
- **4** endemic

SEPTEMBER 2017	APRIL 2018	SEPTEMBER 2018
Chestnut Munia	Striated Grassbird	Wandering Whistling Duck
Barn Swallow	Purple Heron*	Purple Heron
Cattle Egret	Tern sp.	Yellow Bittern
Purple Heron	Zitting Cisticola	Chestnut Munia
Striated Grassbird	Barred Rail	Garganey
Wandering Whistling Duck	Oriental Pratincole	Asian Dowitcher
	Philippine Pied Fantail	Watercock
		Eastern Grass Owl

Eastern Grass Owl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Garganey

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Black-crowned Night Heron

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Clamorous Reed Warbler


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Paddyfield Pipit

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Common Kingfisher

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Great Egret

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Little Grebe

Why Migratory Birds Stay in Rice Fields?

Vegetation structure

Presence of open spaces

Water depth

Macroinvertebrate biomass

Interactions of Birds and Rice Fields

Factor	Effects on Birds	References
Flooding period and date	Early flooding and late drying may favor waterbird density and diversity, and the stopover of migrating species	Fasola and Ruiz 1996, 1997; Richardson and Taylor 2003
Flooding regime	Changing water levels may change bird composition and density in space and time	Tourenq *et al*. 2003
Water level	Lower water levels favor shorebirds and higher levels favor waterfowl Higher bird density and diversity are found at intermediate water levels (10-20 cm)	Huner *et al*. 2002; Elphick and Oring 2003; Elphick *et al.* 2007
Seeding date	Seeding later than surrounding fields may favor some species Timing may affect amount of pesticide use needed	Little data; reviewed in Taft and Elphick 2007

Interactions of Birds and Rice Fields

Factor	Effects on Birds	References
Seeding technique	Wet seeding practices increased the abundance of herbivorous species Nest success higher in wet-seeded fields for some species (whistling ducks)	Tourenq *et al.* 2003; Hohman *et al.* 1994
Seeding density	Higher seeding density may initially favor species that feed on rice seeds	
Plant density and size	Nest density higher in denser rice stands for some species Taller plants and higher density reduces prey availability for most waterbirds but can favor smaller and secretive species	Hohman *et al.* 1994; Maeda 2001; Richardson *et al.* 2001; Richardson and Taylor 2003; Pierluissi 2010

Co-Existence

Water Management

Organic Agriculture

Rice Plant and Field Structure

Management Scheme

Nature-Based Solutions in the Management of the Wetlands

- In the case of Candaba Wetlands, the **development and implementation of a multi-stakeholder, participatory, interdisciplinary program** that internalizes the principles of sustainable agriculture and natural resource management on a landscape scale is the appropriate strategy for environmental management.
- This program should also acknowledge the importance of the ecological, social, economic, and political environments to the communities and farmers in Candaba while it proposes nature-based solutions to environmental and societal challenges.

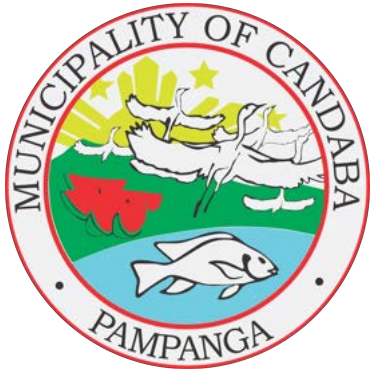
Nature-Based Solutions in the Management of the Wetlands

- Farmers act as **co-equals, as active participants in the development process, and as an informed instructors of local knowledge systems and conservative users of available resources.**
- A multi-stakeholder council for Candaba Wetlands may be established.

We take care of the future best by taking care of the present now.

Jon Kabat-Zinn

Acknowledgement




Dakal pung salamat.
Thank you very much.
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