

Birds, people and papyrus swamps: balancing livelihoods and biodiversity conservation

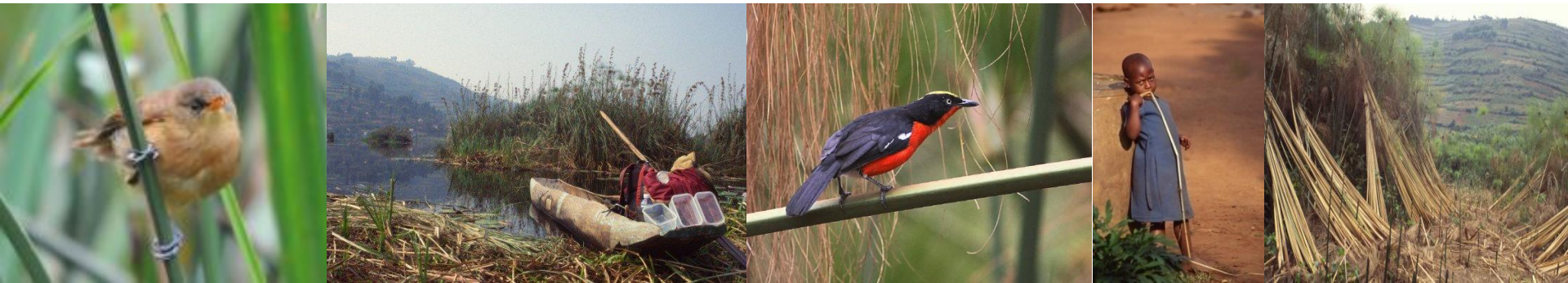
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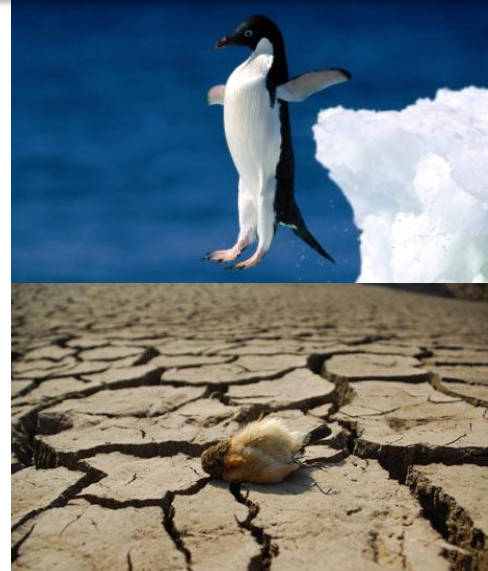
Background

Birds good indicators of ecosystem health:

- *occur in wide variety of habitats*
- *sensitive to environmental change*
- *Well known and easy to monitor*

Much conservation policy is based on birds

- *EU Birds Directive*
- *Ramsar Convention*
- *BirdLife International IBA programme*



Background

Wide variety of birds associated with papyrus swamps

Most not solely reliant on papyrus

Five species considered endemic / near-endemic



Background



Papyrus Yellow Warbler
Chloropeta gracilirostris (VU)



Papyrus Gonolek
Laniarius mufumbiri (NT)



White-winged Swamp Warbler
Bradypterus carpalis



Carruthers's Cisticola *Cisticola carruthersi*



Papyrus Canary *Serinus koliensis*

Background

Wide variety of birds associated with papyrus swamps

Most not solely reliant on papyrus

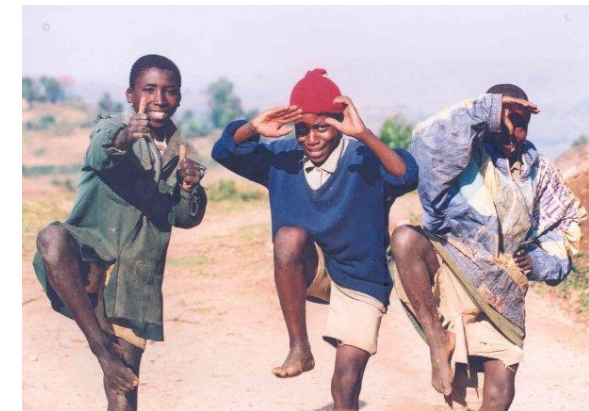
Five species considered endemic / near-endemic

Regionally, among most-threatened and least adequately protected



Key questions

- **How threatened papyrus birds (and why)?**
- **Can conservation resources be targeted?**
- **Are bird-based policies compatible with people?**



Methods

- **Biodiversity surveys across Lake Victoria basin**
- **Analysis of satellite imagery**
- **Socio-economic modelling**



Results: taxonomy

- **Papyrus Yellow Warbler probably three species:**
- *Three highly disjunct populations*
- *Plumage, biometrics, size, bare parts & vocals all differ*
- **Species / population in Kenya **Critically Endangered****
- *Confined to very small number of sites*
- *All sites highly threatened*

Maclean et al. (2003) *Bulletin of the African Bird Club*, 10: 94-100

Albertine Rift



Western Kenya



Lake Mweru



Results: habitat loss

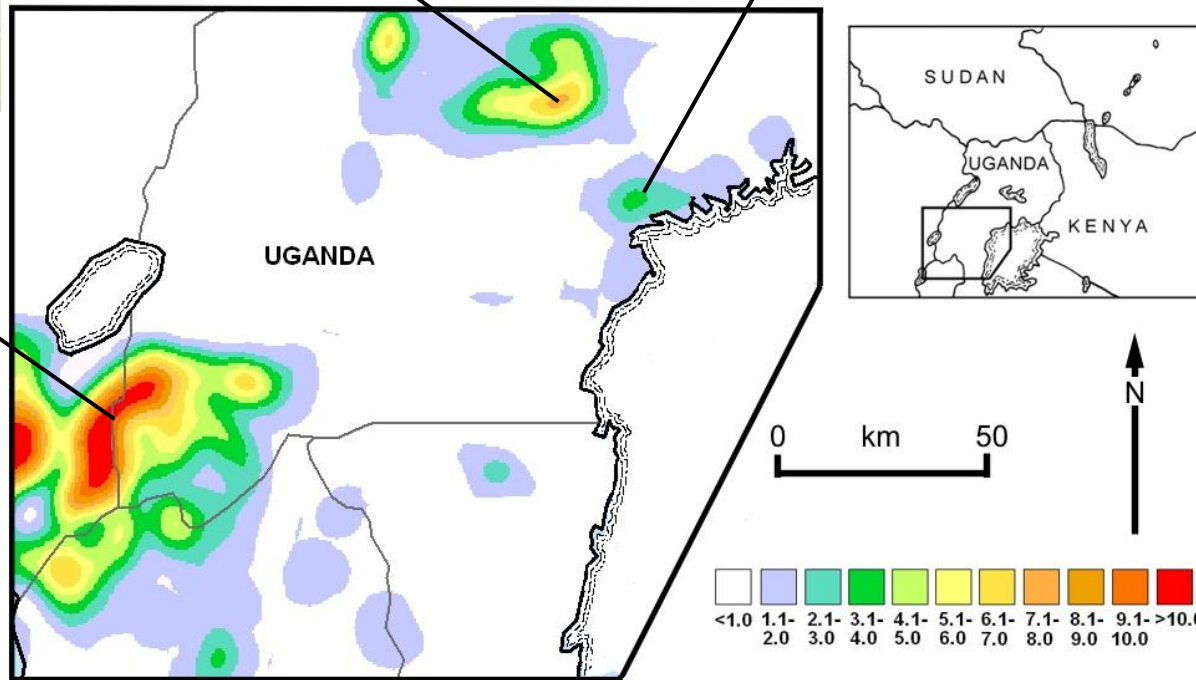


Rice schemes

Dredging & Brick-making



Extensive cultivation & dairy farming



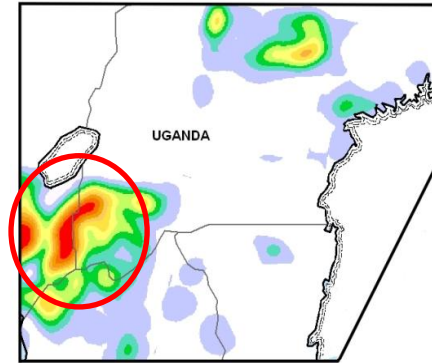
Mean percentage annual rates of wetland loss (1984-2000)

Results: bird loss

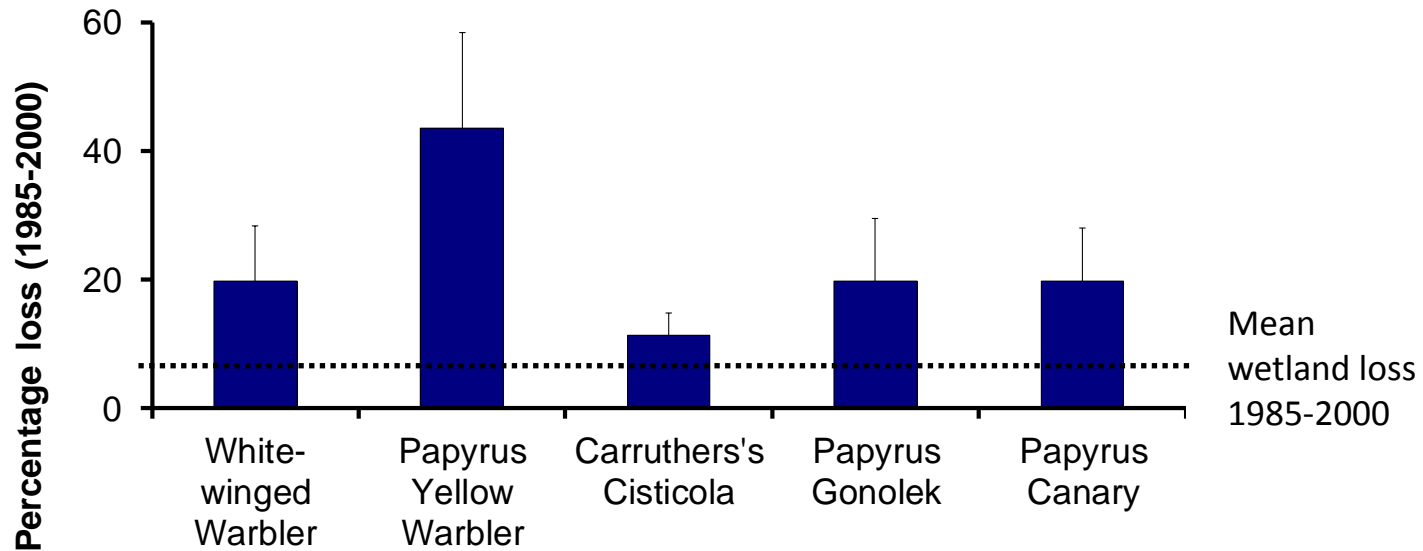
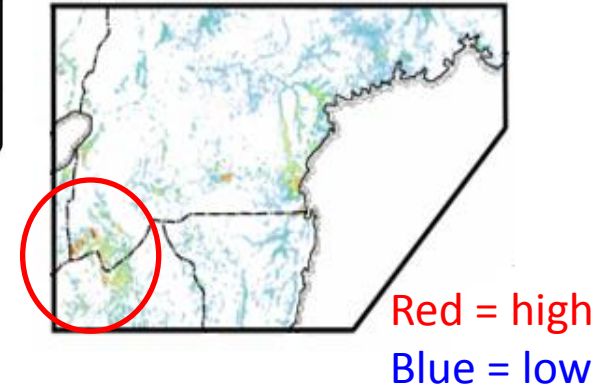
Bird densities higher in areas of high drainage

Bird declines >> wetland loss

Annual rates of wetland loss

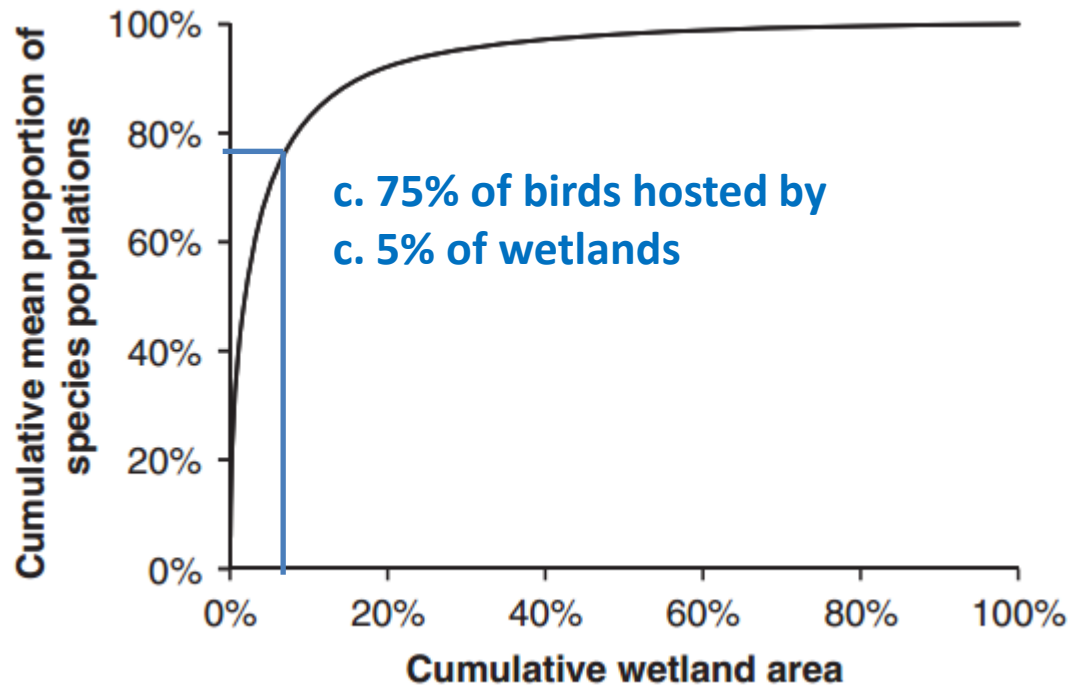


Rarity weighted bird density index

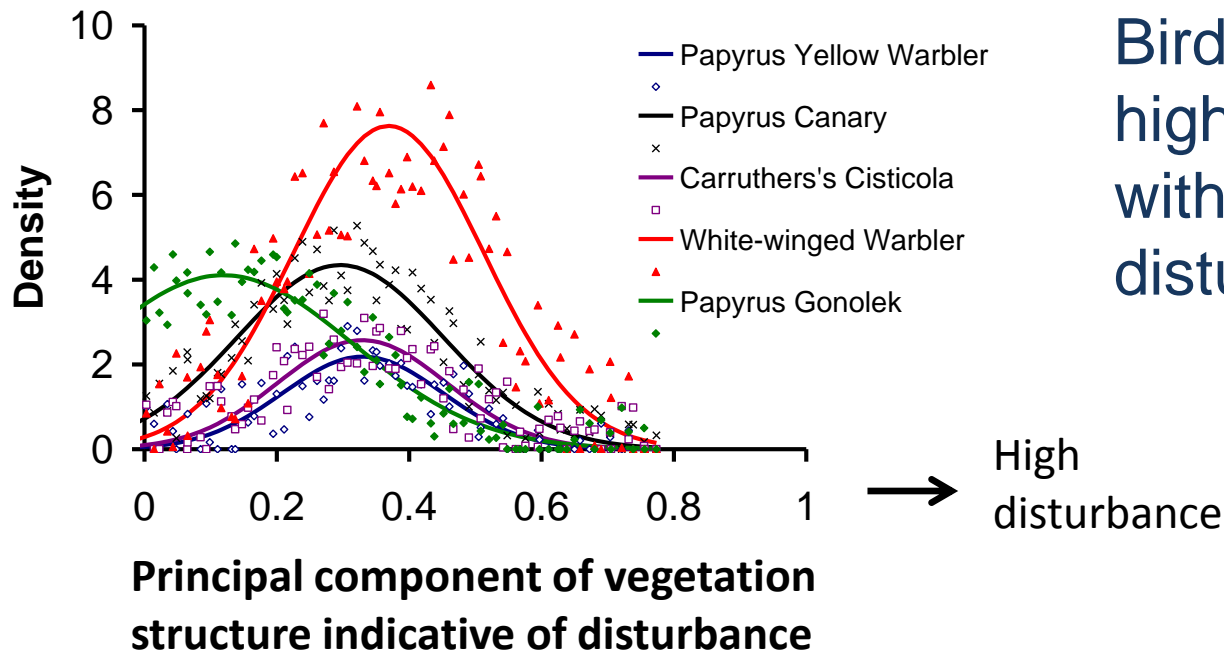


Results: avian responses to disturbance

A small proportion of wetlands host a high proportion of the birds:



Results: avian responses to disturbance



Bird densities highest in swamps with low-intensity disturbance

Conclusions: birds

Birds adversely affected by habitat loss



Birds not adversely affected by low-intensity disturbance

- *Long history of disturbance + extinction filter?*
- *Mimics of disturbance of evolutionary time scales – e.g. large herbivores?*

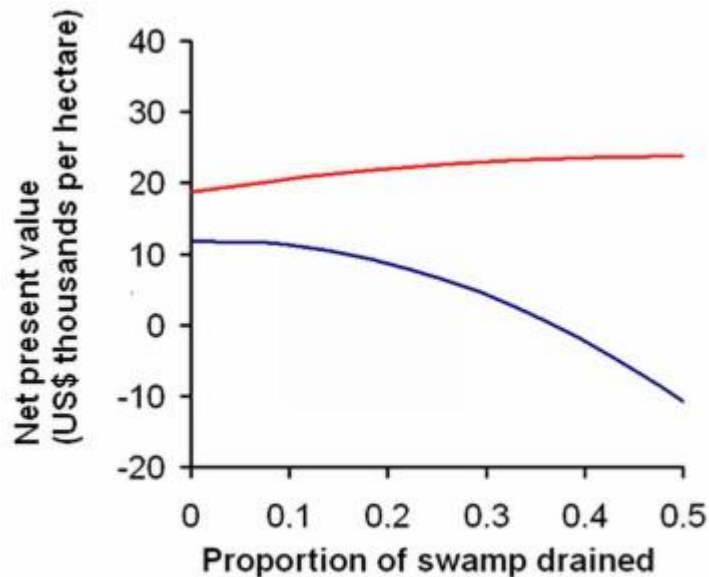


Possible to target conservation resources efficiently

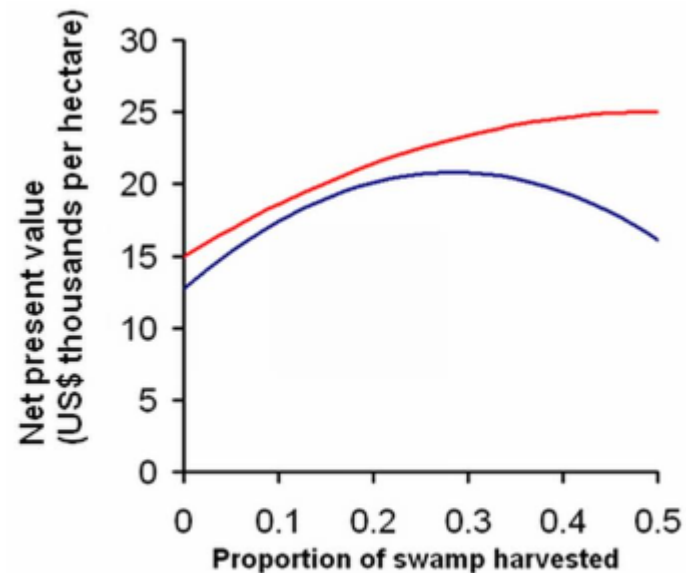


Results: value to people

- Drainage lowers value
- Value maximised with low-intensity use



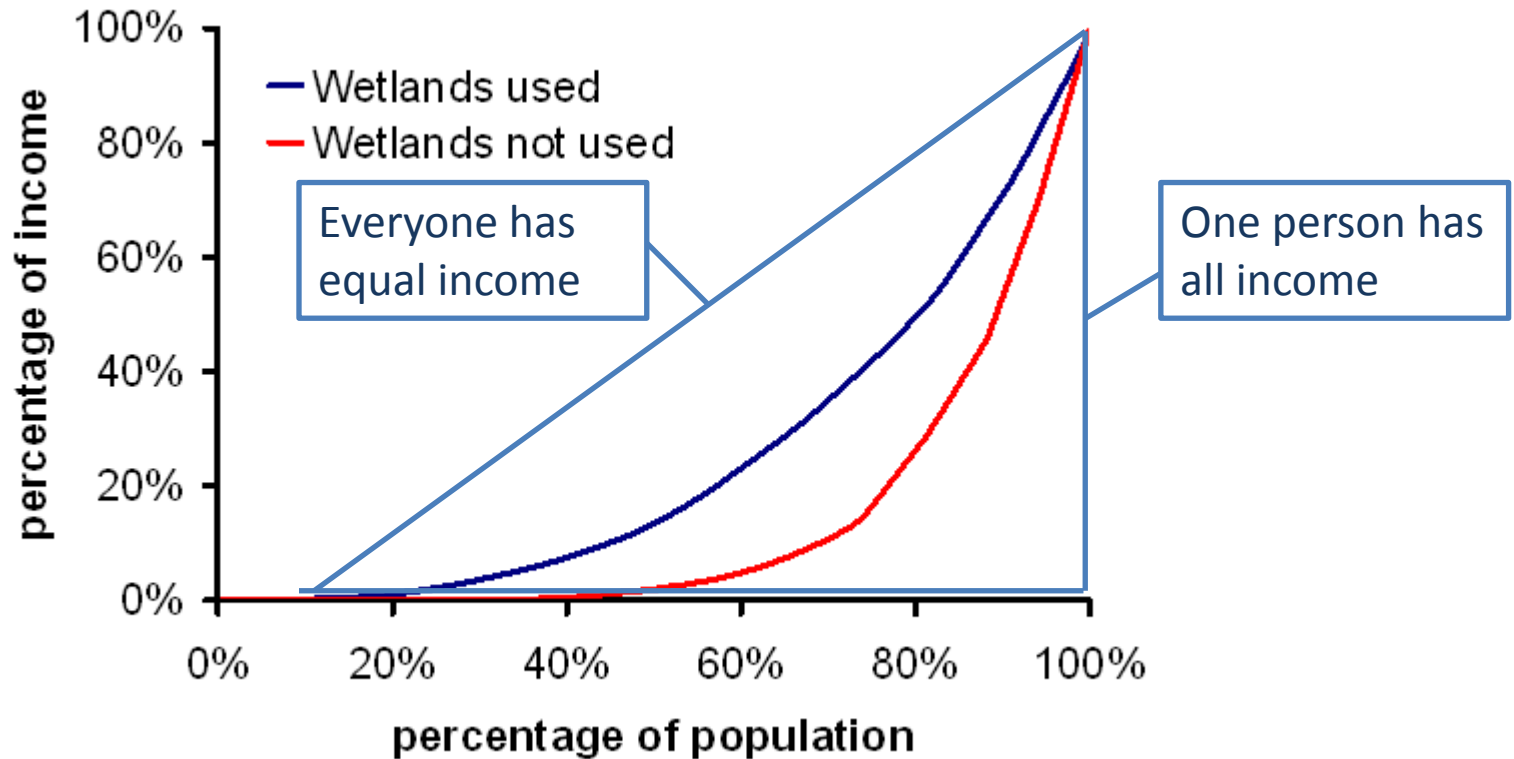
— Current situation
— People 50% Poorer



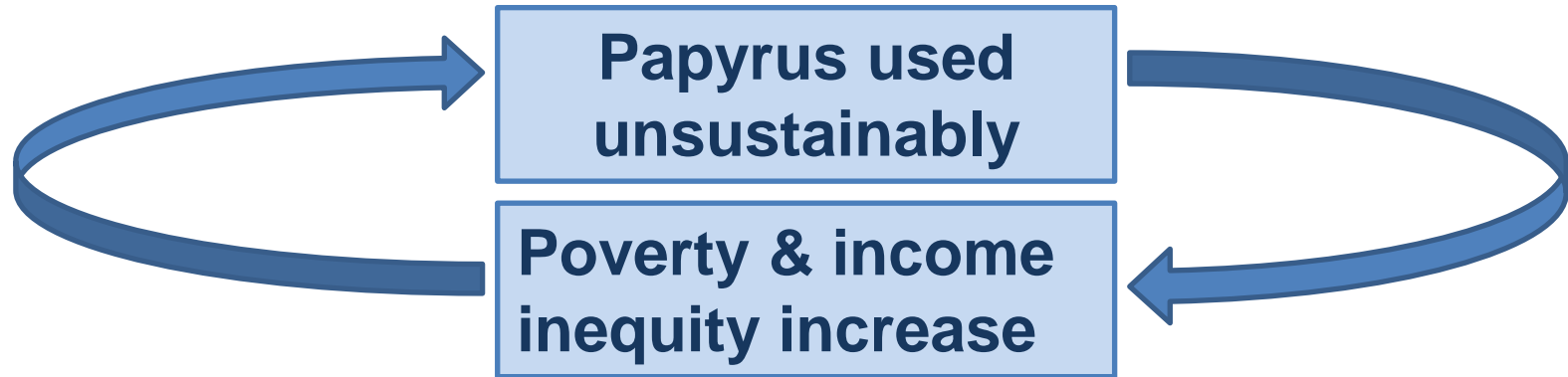
- If people are poorer, optimum value changes

Results: value to people

Poorest people use wetlands the most



Conclusions: people



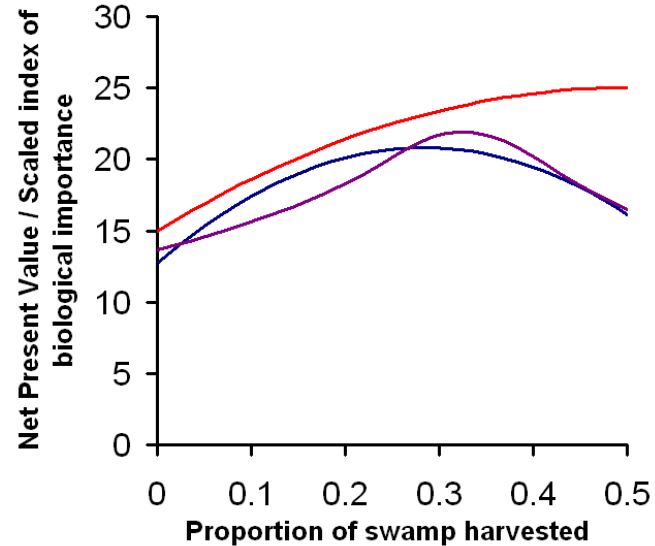
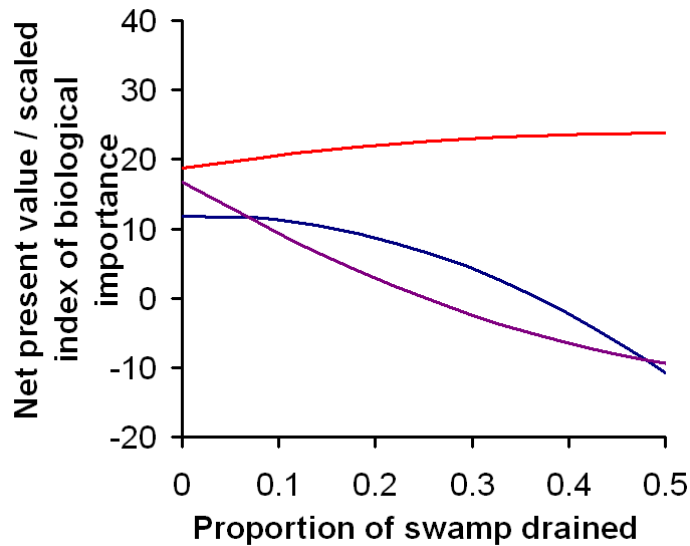
Two equilibria:

- (1) Sustainable resource use, moderate poverty & income inequity
- (2) Unsustainable resource use, high poverty & income inequity

As human population increases, switch from state (1) to (2) increasingly likely

Conclusions: general

Win-win for birds and people depends on poverty reduction



- Current situation
- People 50% Poorer
- Biological importance

The way forward

- 1. Recognise that low-intensity resource use is compatible with conservation**
- 2. Poverty-reduction should be pivotal to conservation policy**
- 3. Seek to diversify income sources as this will break circle of poverty**



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