



Research to support environmental watering: a collaborative approach in the Murray–Darling Basin

Background and work program

Waterbird theme

The Waterbird theme aims to address limited knowledge about recruitment rates and drivers; that is the number of chicks that survive to become independent of their parents. The research is interested in the relative influence of flow variables, habitat variables and threats. Research outcomes of this theme will help managers identify, maintain or restore key habitats, as well as better understand the scales at which key habitats and environmental flows are required to support recruitment.

The broad research questions to be addressed by the Waterbird Theme are:

1. *Which flow regimes best support recruitment of waterbirds?*
2. *How do threats and pressures affect recruitment outcomes for waterbirds?*

These questions are being addressed through activities including:

- ◆ Detailed movement and habitat-use studies of adult and juvenile straw-necked ibis using tracking devices (satellite/GPS) and ABBBS leg banding
- ◆ Quantification of predation (species, impacts, timing, location) and egg and chick development and survival using analysis of images from remote motion-sensing and time-lapse cameras focused on nests
- ◆ Colony mapping, nest counts, monitoring of eggs and chicks, and collection of scat, regurgitate and shed feather samples at a subset of tagged nests
- ◆ Surveys of nesting habitat characteristics (e.g. nest position, water depth, vegetation type)
- ◆ Analysis and modelling of relationships between flows (water-related variables), weather, habitat characteristics, nest success, bird movements and predation.

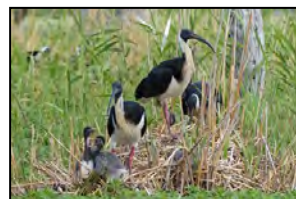
A pilot study was completed in 2015-2016 and full-scale fieldwork including extensive nest monitoring and satellite-tracking of adult and juvenile straw-necked ibis commenced in October 2016.

Regular updates and photographs are posted on the following websites:

<https://research.csiro.au/ewkrwaterbirds/>

<https://www.facebook.com/ColonialWaterbirdScience/>

The Waterbird Theme of MDB EWKR is a collaboration between the CSIRO, University of NSW, University of Canberra and Royal Botanic Gardens Sydney (NSW OEH). It is co-ordinated by Heather McGinness (CSIRO) with a leadership group comprising Richard Kingsford and Kate Brandis (UNSW), Veronica Doerr (CSIRO) and Ralph Mac Nally (UC) providing research direction and design advice.



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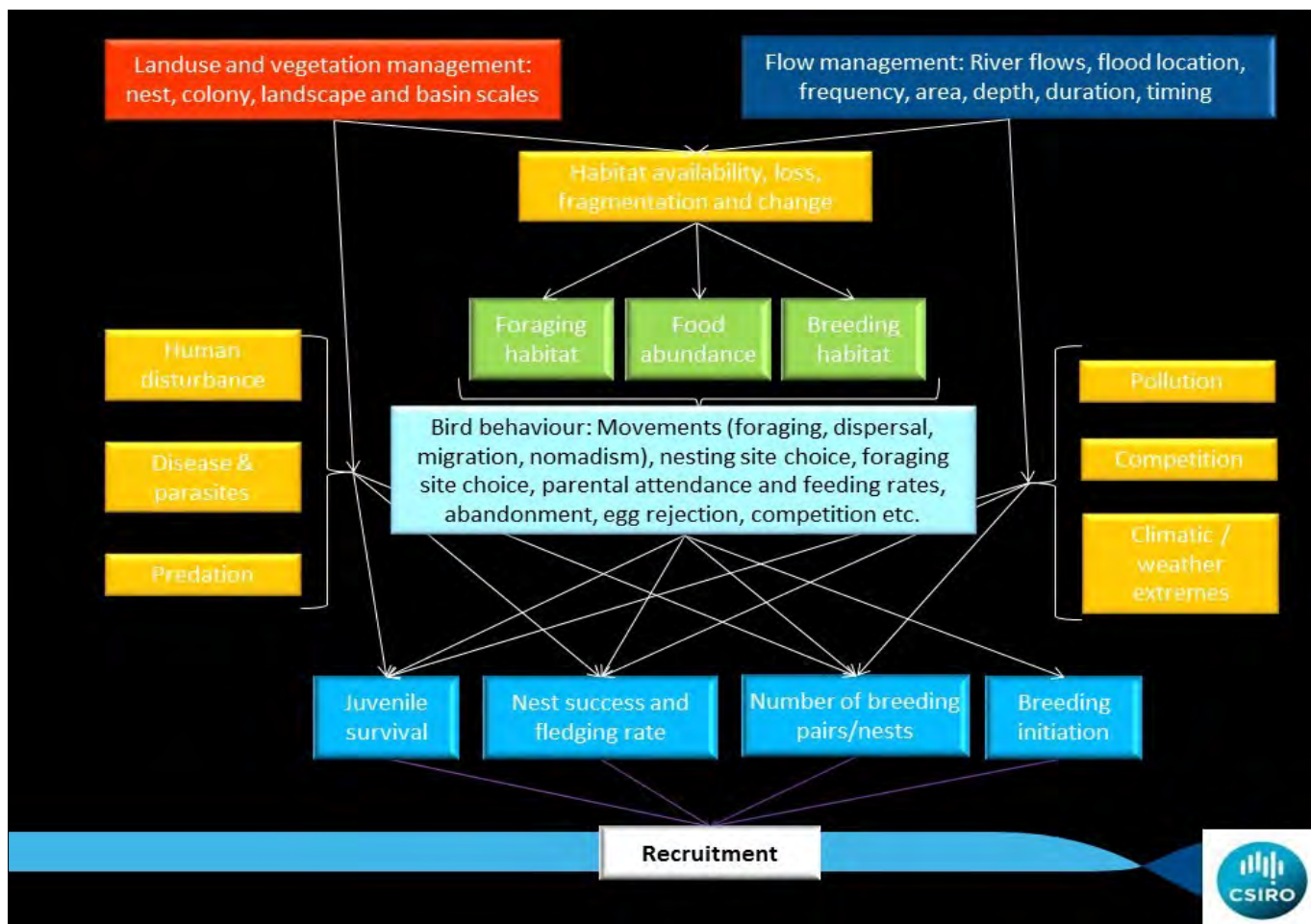
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Above: A conceptual model of the drivers of colonial-nesting waterbird recruitment



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