Australian National University

Lessons from 10 years of biodiversity offsetting in New South Wales

Phil Gibbons

Fenner School of Environment and Society

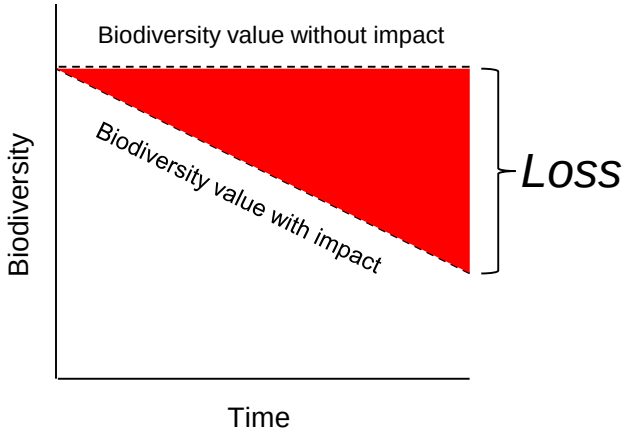
The Australian National University

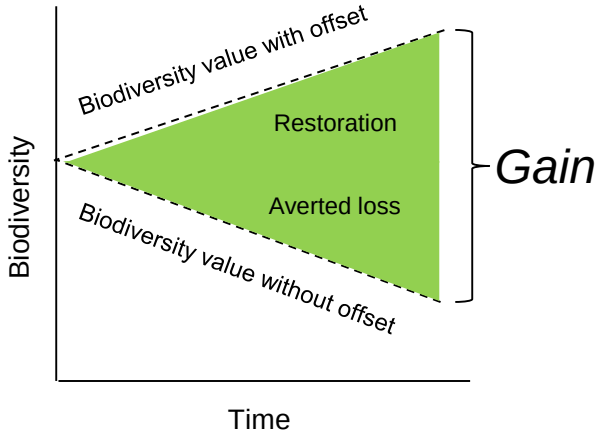
NSW *Native Vegetation Act 2005*

- 10 years
- Aimed to “improve or maintain environmental outcomes”
- ACT offset policy based on same assessment methods as NSW

Biodiversity offsets

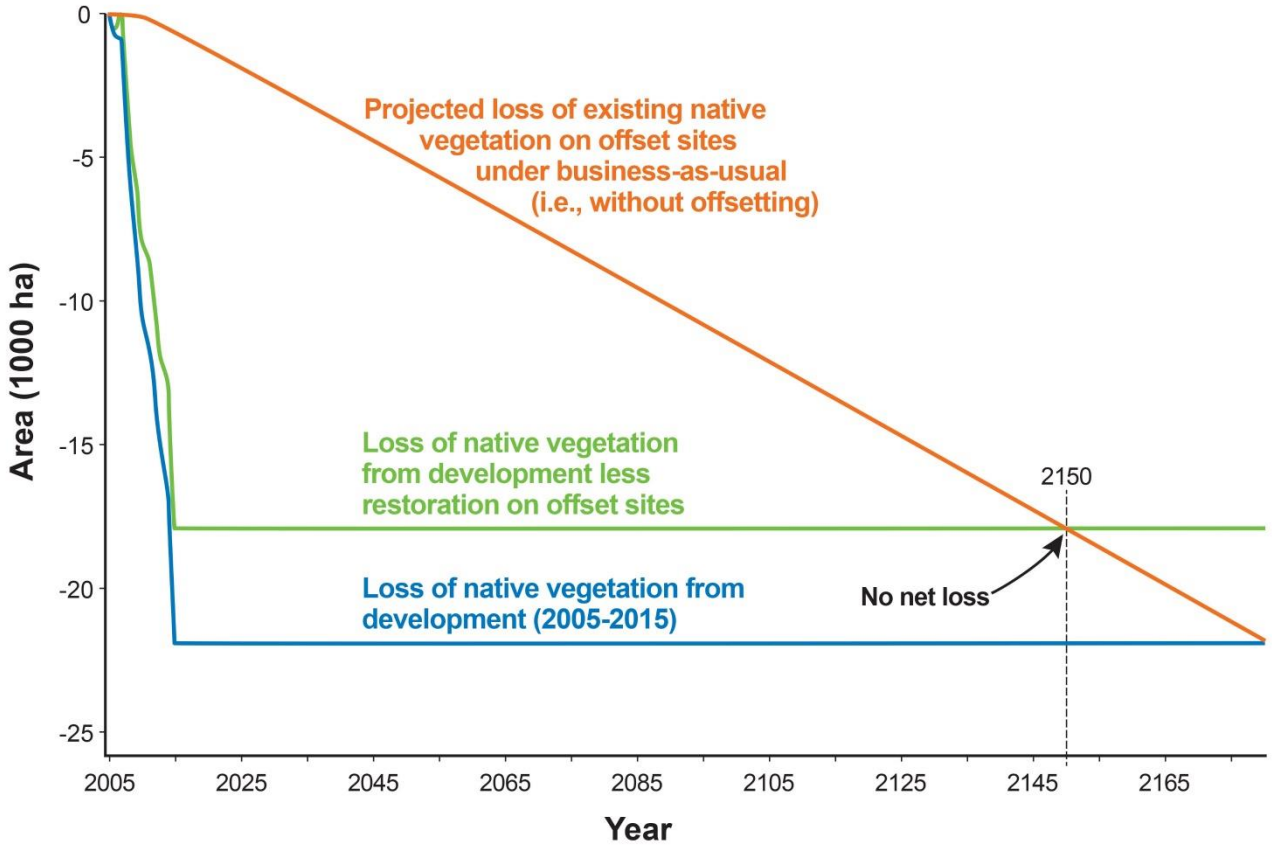
Loss ≤ Gain





Averted loss

- Based on avoiding future loss of biodiversity
- Theoretically useful for offsetting impacts on biodiversity that cannot be easily restored



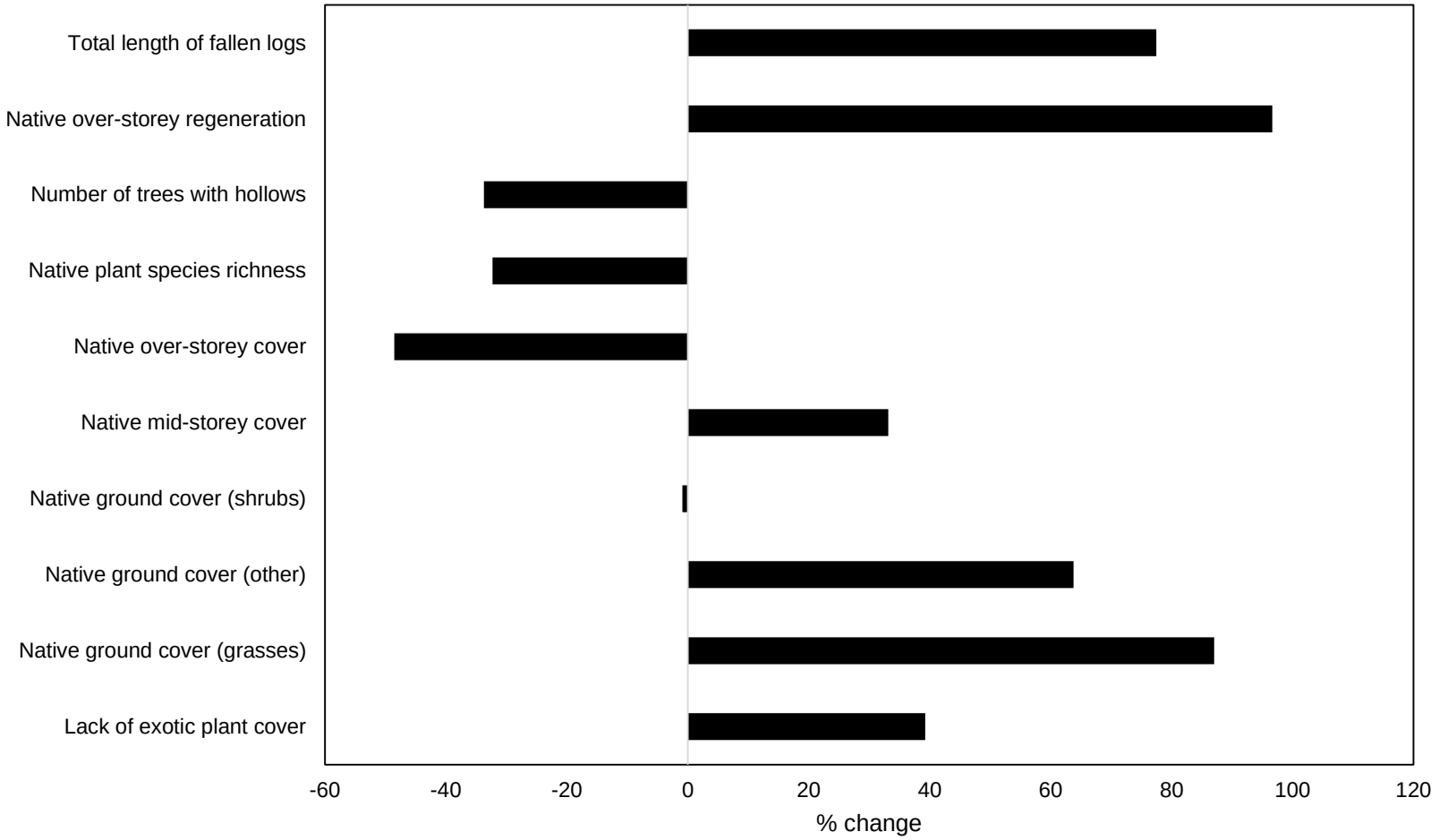
Cumulative loss of native vegetation from development under the offsetting policy examined here (2005-2015) (blue line), less the area of restoration established on offset sites over this period (green line) and the projected loss of existing native vegetation on established offset sites under business-as-usual (orange line). No net loss occurs where the green and orange lines intersect, which we estimated to be the year 2150.

Issues associated with averted loss

- Majority of offsets (82%) obtained by averted loss
- Assumed loss under the counterfactual (0.50% p.a.) > actual loss under the counterfactual (0.13% p.a.)
- Delay of 146 years before no net loss—not consistent with intergenerational equity
- Policy not explicit about the sources and assumed rates of loss under the counterfactual
- Can ongoing loss of native vegetation from development be assumed when the policy is no net loss?
- Averted loss will only slow rate of loss of biodiversity

Condition

- Measured using 10 habitat attributes
- Mix of gains from restoration (e.g., planting) and averted losses (e.g., firewood removal)
- All variables combined into a single metric

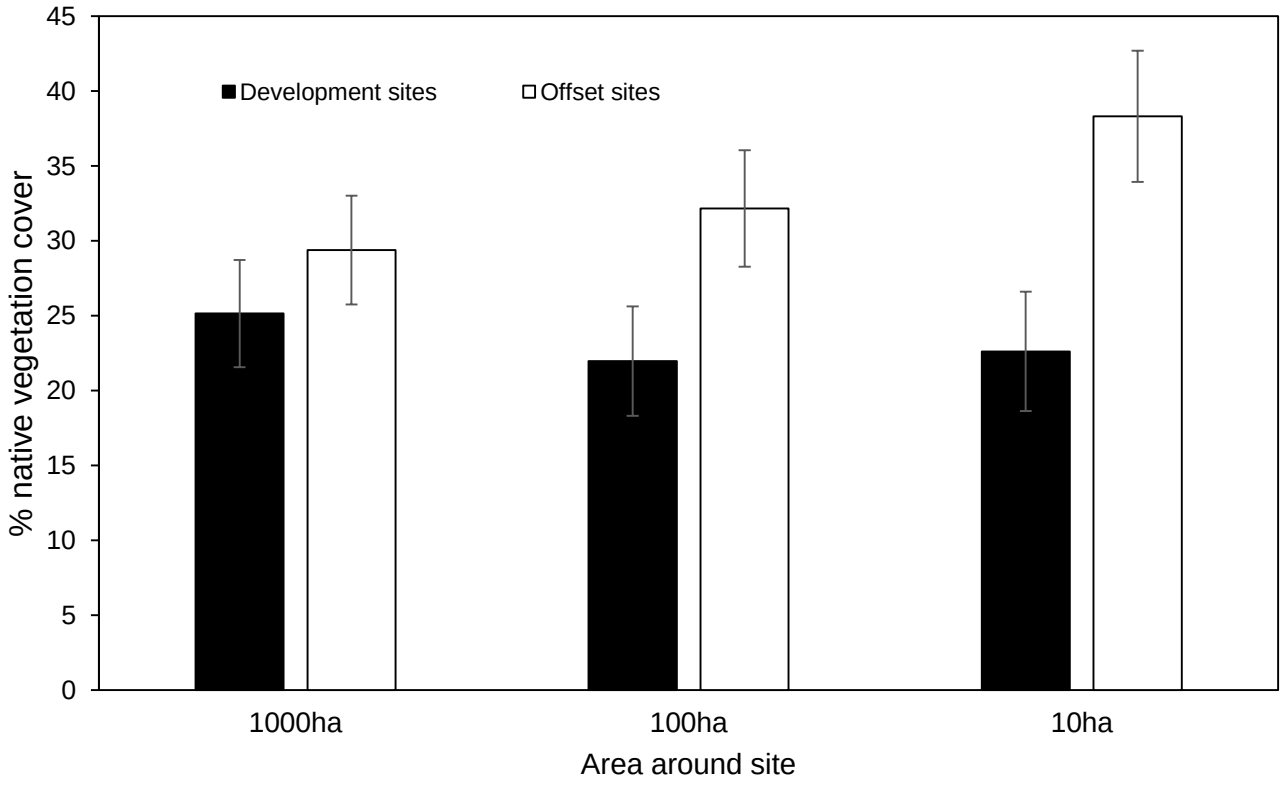


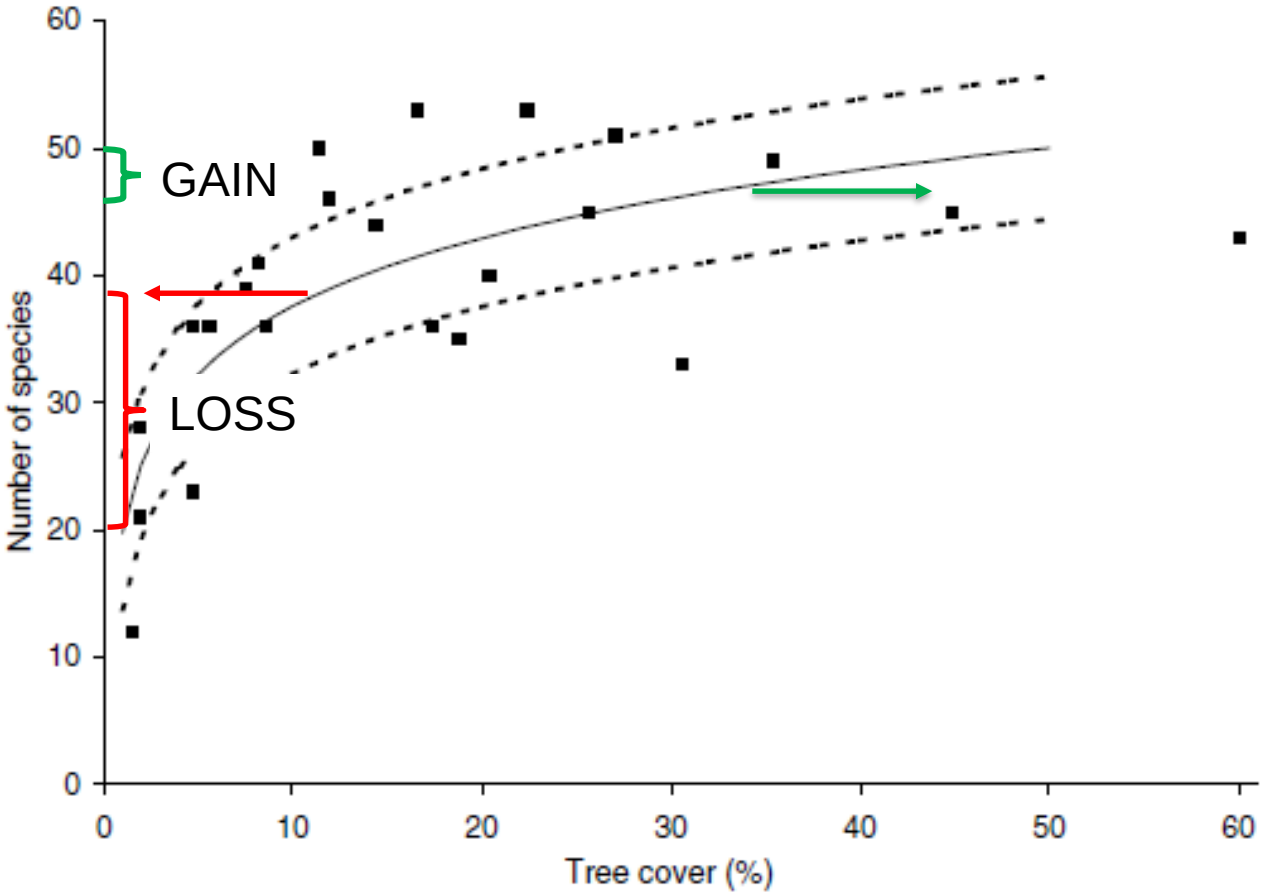
The % change for mean scores recorded for 10 attributes used to assess habitat condition across all development and offset sites

Issues associated with condition

- NNL achieved by replacing of variables that are difficult to restore (e.g., mature trees) with variables that are easy to restore (e.g., seedlings)
- Using weightings in metric exacerbates substitution
- Biodiversity surrogates should be enumerated and traded separately (e.g., Australian Government calculator)

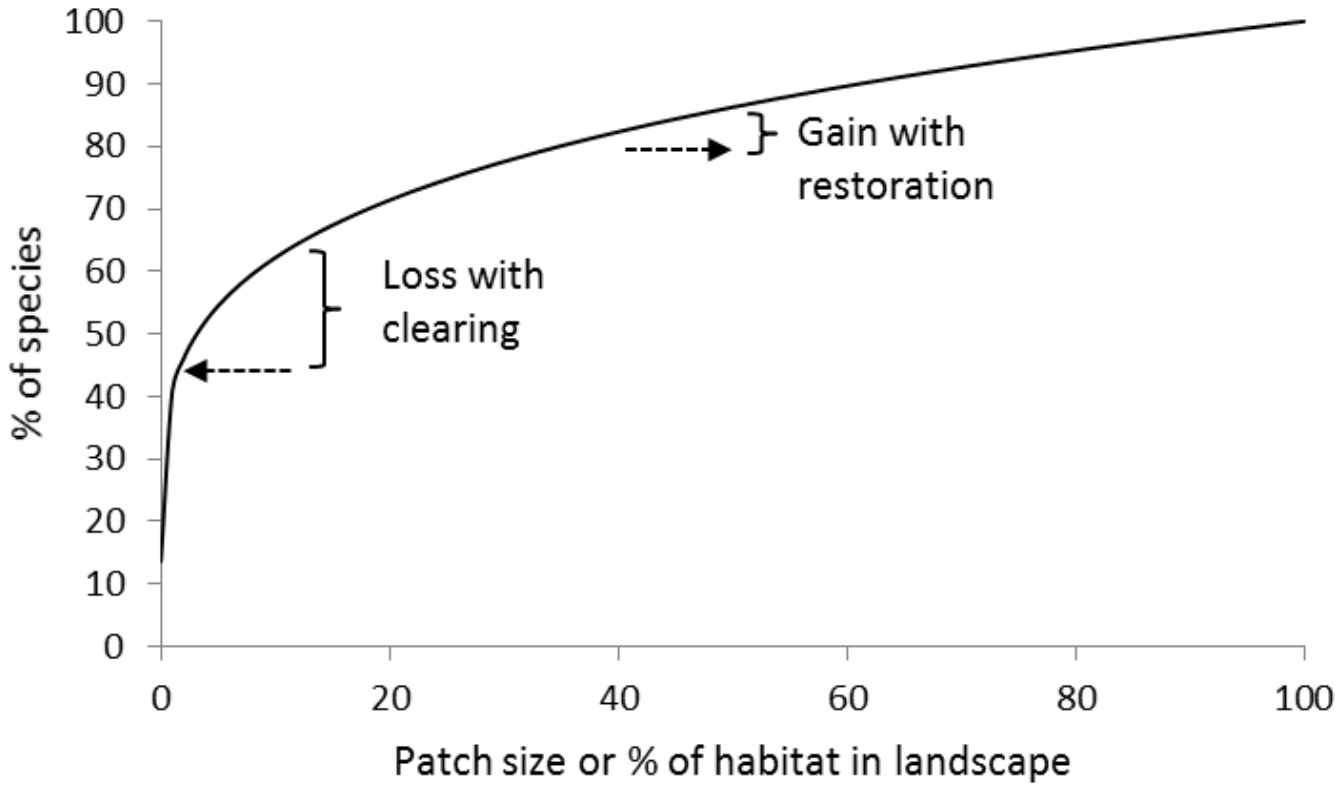
Configuration of habitat





Relationship between bird species richness and % woody cover of 100km2 landscapes in northern Victoria (Radford, Bennett et al. 2005).

Species area curve

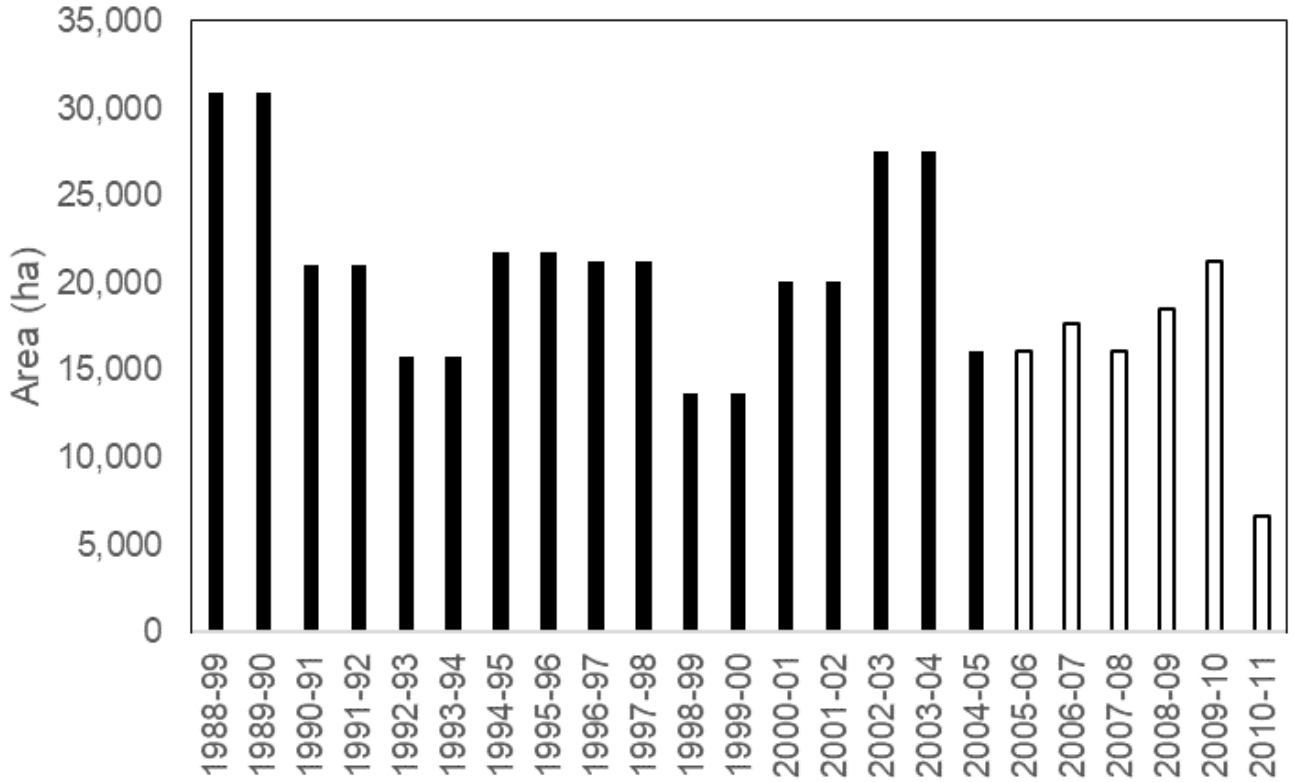


Issues associated with configuration

- Development in more fragmented landscapes tends to be offset by averted loss in more intact landscapes
- Exacerbates loss of mobile species (e.g., birds)
- Development on flatter (more fertile) sites tends to be offset on steeper (less fertile) sites exacerbating bias in reserve system

Do offsets slow the rate of clearing?

- Theoretically offsets place a price on biodiversity equivalent to the cost of its replacement and therefore an economic incentive to avoid biodiversity loss



Annual clearing of native woody vegetation (ha) for rural land uses (crop, pasture, thinning) in New South Wales before (solid bars) and after (white bars) the introduction of biodiversity offsetting.

Offset policy did not affect the rate of clearing

- *Ecosystem degradation can rarely be reversed without actions that address one or more indirect drivers of change* (Millennium Ecosystem Assessment 2005)
- Suggests a no net loss policy will only work if introduced alongside actions that tackle those parts of society and the economy that represent the drivers of biodiversity loss

Information sources in NSW

- Public register of approvals (location, area, type of clearing)
- Investment in remote sensing (SLATS)
- Annual report card on amount and sources of clearing and restoration
- Data for individual assessments (but not publicly available)

Information lacking in NSW for a thorough evaluation

- No record as to whether conditions imposed upon developers were implemented on the ground (e.g., WA public register)
- No data on predicted vs actual improvement in condition
- No data on actual changes to area of scattered trees and non-woody native vegetation
- No obligation to use monitoring data to inform policy (was not used to reform policy)