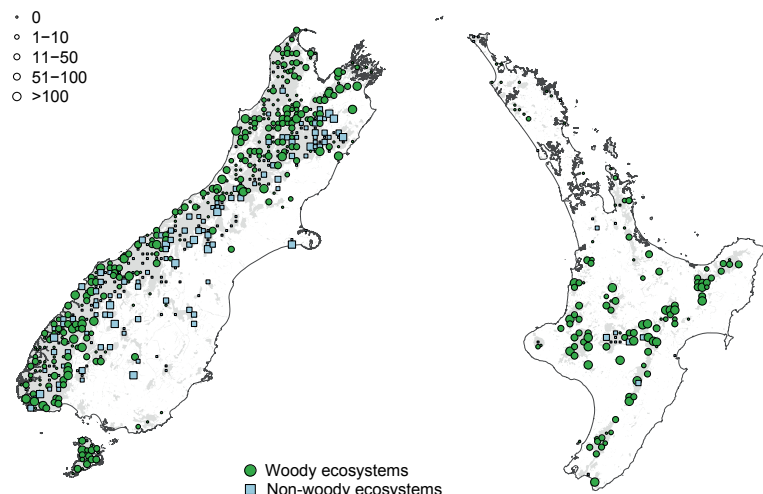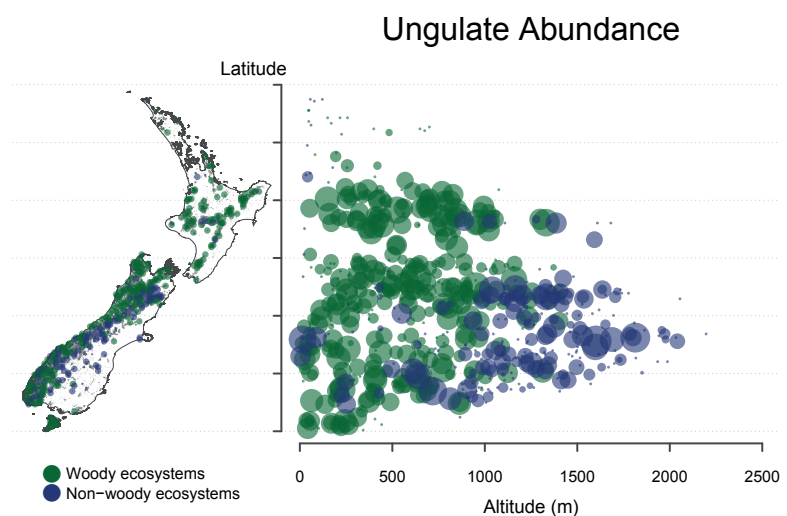# Where are ungulates (goats, deer, chamois etc.) most abundant across public conservation land?

Summary

Ungulates (goats, deer, chamois etc.) are widespread throughout most of public conservation land. The majority occur in woody ecosystems, and they are most abundant in sites below 1800 m altitude. They are less abundant in non-woody ecosystems and at lower latitudes. This information can help direct ungulate control efforts on public conservation land.

Main findings

- Ungulates ((goats, deer, chamois etc.) were widespread throughout woody ecosystems (forests and shrublands) on New Zealand's main islands (70% of sample points), with fewer occurrences and mostly lower abundances in non-woody ecosystems (50% of sample points).

- Ungulates occurred mostly below 1800 m in altitude; when they occurred above this altitude they were much less abundant.

- Ungulates were much less abundant at lower latitudes (e.g. top of the North Island).

Ungulate Abundance

- Woody ecosystems
- Non−woody ecosystems

Latitude

Altitude (m)

- 0
- 1−10
- 11−50
- 51−100
- >100

- Woody ecosystems
- Non-woody ecosystems

All sample locations are scattered according to their altitude and latitude. The size of the symbol at a sample point is in proportion to the abundance of ungulates at that location; the smallest points represent a sample location where ungulates were not detected.

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Te Papa Atawhai

Why is this important?

This information provides a clear picture of the scale and extent of ungulate invasion of public conservation land. Mortality rates of trees that are palatable to goats exceed their recruitment rates nationally. The high abundances of ungulates in forests in the North Island, especially in areas where goats are prevalent, could direct management intervention to reduce their numbers, and then to evaluate whether population trends in palatable trees are reversed. White-tailed deer are the most widespread ungulate on Stewart Island and the evidence that their abundances are high by national standards could also prompt management intervention. The estimates of ungulate abundance provide important baseline information for comparing against future assessments and different management interventions.

Definitions and methodologies

- This section uses information from Measure 2.2.1 ("Distribution and abundance of exotic weeds and pests considered a threat – Pest mammals") assessed across all public conservation land (Tier One systematic national sampling).
- Ungulate abundances were assessed at 683 sampling locations throughout public conservation land (447 in woody ecosystems and 236 in non-woody ecosystems), sampled between 2011 and 2014.
- Ungulate abundance was calculated using the Faecal Pellet Index, following Forsyth DM 2005 protocol. At each location, four 150-m transect lines were set radiating out from the central 20 m × 20 m vegetation plot and the number of intact faecal pellets in circular plots of 1-m radius spaced at 5 m intervals were counted, resulting in 30 plots per transect line.
- The estimate of relative abundance was the total number of pellets counted per line, averaged across the four lines. The total number of pellets along each transect line has been shown to be linearly and positively related to known abundance of deer.
- In the figure, all sample locations are scattered according to their altitude and latitude. The size of the symbol at a sample location is in proportion to the abundance of ungulates at that location; the smallest points represent a sample location where ungulates were not detected.

Where can I find more information (links)

http://www.landcareresearch.co.nz/publications/researchpubs/department_of_conservation_biodiversity_indicators_2013_assessment.pdf