

Falcons in vineyards: the way forward

Nestlings about to be installed in an artificial nest in a vineyard

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Nature's services are globally valued at \$33trillion world wide (Constanza et al., 1997).



Adult falcon feeding unrelated juvenile

Introduction

The Falcons for Grapes project began in late 2005 when the first nestlings were translocated from nests in the hills of the Waihopai Valley to artificial nests in mussel barrels in vineyards. Falcons are now breeding and nesting in vineyards. They are flying at will and consorting with wild falcons from the surrounding hills. They remain loyal to the vineyard feeding trays.

Bird damage to grapes, with subsequent rot



The aims of this project have been twofold – to establish a colony of threatened NZ native falcons in vineyards, and to reduce bird damage to grapes using an established natural ecosystem. The first aim has been achieved. The hypothesis for the second aim was that by introducing a natural predator into the ecosystem populations of destructive birds would not increase exponentially at grape ripening time, as is presently the case in many vineyards. Bird pressure would be reduced, not only by the presence of the natural predator, but also by heightened bird sensitivity to all other potentially dangerous environmental factors and scaring tactics. Grape damage surveys, funded by SFF, have been conducted in conjunction with the Falcons for Grapes project.

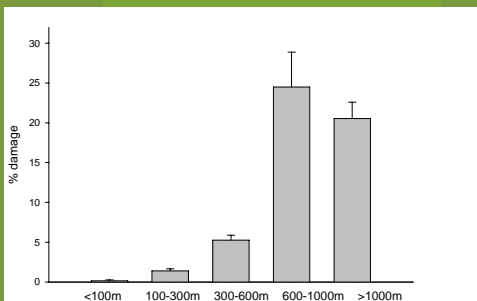


Figure 1: Mean damage in 2008 to grape bunches at varying distances from falcon feeding trays. All vines were unnetted. Scores were from edges i.e. from vines within 10m of the edge of the vineyard block.

Grape Damage Survey 2008

Grape damage survey: at vintage 2008 1420 bunches were objectively selected and damage visually estimated (see Saxton, 2006 for methods). After correction for accuracy of the visual estimate, scores were statistically analysed and graphed (Figure 1).

THESE RESULTS SHOW THAT GRAPE DAMAGE WOULD BE REDUCED TO CLOSE TO **ZERO** WITHIN A RADIUS OF 300M FROM A FALCON FEEDING TABLE – THIS IS AN AREA OF **28 HECTARES**. WITHIN A RADIUS OF 600M DAMAGE WOULD BE REDUCED TO AN ECONOMIC LEVEL WITHOUT THE NEED FOR NETTING OR SHOOTING; THIS IS AN AREA OF **113 HECTARES**.

With SFF funding now ceasing, the programme must move to adoption by the industry. The results presented here indicate that native falcons established in vineyards may provide considerable protection from bird damage, and is a clear example of an existing ecosystem that could be adopted to afford economic benefit (Constanza et al., 1997). However, calculating the economic value of this ecosystem service to the wine industry requires analysis of expected costs and benefits of falcons in vineyards.



Male falcon with blackbird in a vineyard

RECOMMENDATIONS: To quantify the value of this project to the industry figures are needed on:

Predicted costs:

- Costs of maintaining and/or increasing numbers of falcons in vineyards
- Costs of promoting the project to achieve greater adoption level

Predicted benefits:

- Revenue effects of greater yield, higher quality grapes
- Predicted increased coverage of protection area with increased falcon numbers
- Predicted cost savings from reduced netting, shooting and other controls
- Marketing opportunities (and costs of these)

And to continue the project to a self-sustaining format:

- Funding and governance
- Sources of funding
- Barriers to adoption
- Management of the project as a whole
- Liaison with DOC

References: Costanza, R., d'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R.V., Paruelo, J., Raskin, R.G., Sutton, P. and van den Belt, M. 1997. The value of the world's ecosystem services and natural capital. *Nature* 387, 253–260
Saxton, V.P., 2007 How to measure bird damage in vineyards. NZ Winegrowers Focus Vineyards. <http://www.nzwine.com/focus/>

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