

Use of raptors to prevent wild bird and rodent intrusion into fresh produce fields

SUMMARY

Wild animals, such as birds and rodents, carry foodborne pathogens that may be a threat to fresh produce crops. This project will determine if the use of falconry is an efficient and cost-effective natural way to deter birds and control rodents in fresh produce fields. Falconers are flying captive-bred predatory birds every hour from sunrise to sunset to deter nuisance birds, and in later stages of the project, we will control rodent populations by attracting native owls and kestrels to fresh produce fields using nest boxes. We will also release native rehabilitated birds in agricultural areas. We are measuring the success of falconry using bird counts, pre- and post-rodent trapping, and documentation of food safety risks in fields with and without falconry. To date, we have a 97% success rate in deterring nuisance birds with the use of falconry.

OBJECTIVES

This project aims to determine if:

1. The use of falconry at critical times in the growing season (post-sprouting and pre-harvest) decreases fresh produce crop loss due to food safety hazards from wild bird intrusion;
2. Establishing wild native owl and kestrel programs that promote site fidelity (including rehabilitated released native owls and kestrels) decrease rodent populations near fresh produce fields, thereby reducing food safety risks related to rodent intrusion; and
3. The use of falconry is a cost-effective approach to bird and rodent deterrence compared with traditional methods.

METHODS

We selected two fields in a single area with heavy bird pressure, as reported by the growers, for coverage with falconry. One to three falconers were present in the fields from dawn through dusk every day from planting to harvest. Every hour, they recorded bird counts over and around the two fields, documenting the presence of nuisance birds. If nuisance birds were present or suspected of being present, the falconers selected the appropriate trained birds to fly to deter them. After the trained birds returned from flight, the falconers recorded if the flight was successful, meaning that all nuisance birds had left the area.

RESULTS TO DATE

After 6 weeks of preparations, three falconers arrived in Yuma on February 14, 2018. We placed the SCATT (Super Cool Agricultural Testing and Teaching) Lab in the field to serve as Falconry Base Camp for the season. The falconers lived in the RV and set up an aviary for their birds. From February 18 to April 15, 2018, falconers made a total of 659 bird count observations. They released trained birds for abatement 102 times in response to the presence ($n=93$) or suspicion ($n=9$) of nuisance birds. Figure 1 shows the number of birds recorded by falconers prior to flying trained birds. The most commonly used trained bird was a Harris hawk (54 flights), followed by a peregrine falcon (45 flights). Overall, we had a 97.06% success rate at deterring nuisance birds from fields (Table 1).

BENEFITS TO THE INDUSTRY

We have nine industry cooperators on this project, and all of them will benefit from the use of falconry in their fields. Those who provide experimental fields will experience a decrease in food safety risks related to bird and rodent intrusion. All growers in the desert produce-growing region will have the potential to benefit from this research over the long term because this project is a starting point for a much bigger effort in which falconry will become a standard practice in the culture of growing fresh produce crops in the southwest desert. One of the primary reasons that falconry is not currently used extensively in agriculture is due to the cost. Our ultimate long-term goal is to establish an agriculture-based Falconry Center in Yuma, AZ, where we will be able to significantly decrease the costs associated with using this type of bird deterrent and rodent control method.

Figure 1. Number of times birds were reported to be in, over, or near fields

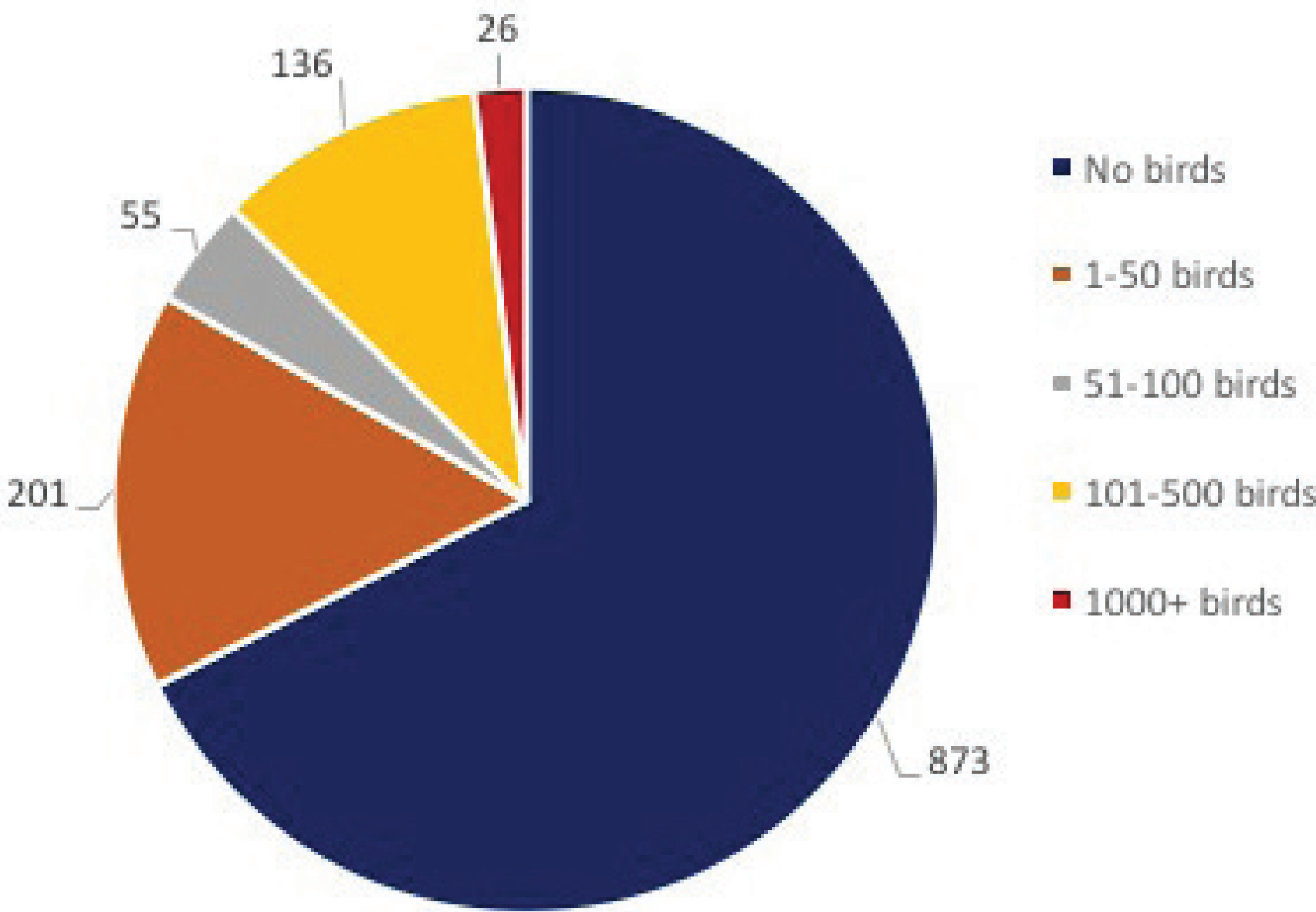


Table 1.

Reason for flight	Successful flight – No visual sighting of nuisance birds	Unsuccessful flight – Possibility that nuisance birds remain
Abatement – Suspect birds are present	9/9 (100%)	0/9 (0.0%)
Abatement – Visual confirmation birds are present	90/93 (96.77%)	3/93 (3.23%)
Total	99/102 (97.06%)	3/102 (2.94%)



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