

RESEARCH PROBLEM STATEMENT #EV-506

I – Problem Title

Effective Methods of Excluding Nesting Cliff Swallows From Highway Structures (EV5)

II – Research Problem Statement

For many bridge and structure construction projects throughout California, compliance with the Migratory Bird Treaty Act requires the exclusion of nesting swallows from the construction area. A common method for swallow exclusion involves netting a structure to prevent access by potential nest builders. This method, while often successful in preventing nesting, has also resulted in the occasional trapping and inadvertent killing of the animals attempting to nest on the structures.

III – Objective

Synthesize the existing knowledge of highway structure construction and known exclusion methods used to prevent nesting by swallows. Perform field studies at construction sites to understand the requirements of the nesting birds and how to best prevent the nesting behavior in a cost-effective manner. Test and evaluate different exclusion methods to determine effectiveness, installation methods, cost, and feasibility. Using literature searches, agency queries, etc. develop a methodology to accurately measure success of exclusion and any mortality rates resulting from proposed exclusion methods. Develop a recommended strategy or strategies.

This research will support the Department’s performance goal of improving transportation project delivery. Our values of innovation, communication, partnership, and stewardship are also reflected in this study.

IV – Background

It appears that each District within the Department approaches swallow exclusion on a case-by-case basis. Different methods are used with various outcomes, from success to failure. There is strong evidence that suggests netting may not be the best approach. It is possible that in some situations, a coating might be applied to the structure in question that would prevent the attachment of mud nests for a period of time. On smaller bridges, it may be possible to create a “mister” apparatus, which would keep the surfaces of the structure sufficiently moist to prevent mud nesting. Perhaps there are alternative types of netting that could be used, where some are better than others.

Seasonal construction work windows are commonly employed as avoidance mitigation, often resulting in motorist and project delivery delays. Knowledge of construction impacts on the nesting behavior of these birds will give the Department and our partners the ability to plan appropriately for mitigation and limit the amount of mitigation that is performed to situations where impacts will actually occur.

V – Statement of Urgency and Benefits

The need for this research is not urgent, but there have already been projects where the contractor has been unsuccessful in preventing swallow nesting on a bridge to be demolished, resulting in delays, bird mortality, cost increases and potential credibility issues with resource agencies.

Many projects require swallow exclusion be installed by Caltrans staff before a project contract has been awarded. In these instances, the Department is obligated to properly exclude nesting birds and properly maintain the exclusion devices until a contractor has been awarded the contract and can take over these duties.

VI – Related Research

It is unknown whether there is or has been other research conducted on swallow exclusion. It is possible that the literature search could provide all the information needed to develop a recommended method(s).

VII – Deployment Potential

The project will result in acceptable methodologies to forecast and mitigate the impacts of construction activities to migratory bird species. It will be deployed as guidance to the biological staff in the Department and be made available to our transportation partners. There is an opportunity for us to assume a leadership role with the regulators and to objectively seek answers, which may assist other agencies and municipalities in compliance with the Migratory Bird Treaty Act.