Bruce Cousins PUMA info 3/2015

History: PUMA shifted to nesting in woodpecker cavities in the original untreated pilings throughout the Pacific Northwest in the late 1800s and early 1900s, which became their last nesting site refuge with continuing loss of their upland snag nesting habitat to timber harvest and land clearing and development. Gradual replacement of these old pilings with creosote-treated pilings as they decayed was the primary driver of the severe PUMA population decline in the mid-late 1900s, demonstrating the lack of a suitable alternative (*Report on the Status of Purple Martins in British Columbia* - Cousens and Lee 2012). Adding nest boxes to these pilings reversed the decline and has been responsible for their recovery (though the Puget Sound population suffered a temporary setback with ~50% decline in abundance due to nestling losses to adverse weather in 2006-08), so nest boxes on creosote-treated pilings are now essential nesting habitat for PUMA in Puget Sound (and BC and coastal OR) today.

A number of PUMA colony sites were lost to piling removal in WA some years ago, and it has been my understanding for a number of years that DNR (Lisa Kaufmann et al at the time, as I recall?), after discussion of the situation with WDFW staff (Michelle Tirhi et al, cc'd above), had agreed NOT to include pilings with PUMA nest boxes (or nests of some other at-risk and/or protected species) in their creosote-treated piling removal program for marine environment clean-up, until such time as funds were available for appropriate mitigation measures, e.g. installing alternative structures on site or nearby to support the nest boxes (M. Tirhi, pers. comm.; WPMWG). I'm not aware that this policy has changed (and it sounds from your description as if DNR is opposed to any such mitigation within the tidal area), but if so, it wouldn't be particularly surprising that I haven't heard about it here in BC until an issue such as this is brought to my attention. I'm also not sure if WDFW has since developed other measures for protection of PUMA colonies on marine pilings, which would be worth checking if you haven't done so already.

Additional Input: For that reason I've cc'd this reply (with your maps attached) to Michelle Tirhi (who has been involved with the PUMA and creosoted piling removal issue from the outset) and her colleague Tammy Schmidt at WDFW, in case they are unaware of the situation and/or have anything helpful to add. Both are also Western PUMA Working Group members and involved in coordinating the PUMA monitoring, conservation and recovery effort in N. Puget Sound, so familiar with their nest site requirements, and the East Bay colony is included in their state-wide PUMA nest site inventory. I used a priority flag in hopes it will help Michelle to pick this message out of her daily e-mail deluge, but it's likely best to phone her as well at **206-406-9966** to be sure - at busy times her routine e-mail responses can be backlogged for a week or two at least.

I also cc'd several other WPMWG members involved with PUMA conservation work in northern Puget Sound, in case they have other suggestions, know of suitable nearby colony locations, etc. The attached maps may be useful for their information as well.

Colony Relocation: To the best of my knowledge, you are correct that attempts to move martin colonies from intertidal and offshore sites to inland locations have so far not been very successful over the long term. Martins require open spaces with few trees, buildings or other obstructions, and prefer to nest over water, which greatly reduces risk of nest predation from terrestrial climbing predators - to them a group of pilings with cavities or nest boxes is a flooded snag stand, so potentially an ideal safe place to nest. All poles with nest boxes may seem equal to us, regardless of the location and surroundings, but to martins this is definitely NOT the case. We have had NO success in BC encouraging our now coastal-nesting martins to voluntarily occupy apparently suitable inland sites, *except* in natural cavities or nest boxes on pilings or snags surrounded by fresh water in lakes, reservoirs and large rivers - they have completely ignored suitable housing at open upland sites for well over a decade. There are a few successful inland colonies in artificial housing near water in southern WA and OR (as well as small scattered remnant snag-nesting colonies where suitable habitat remains), but it's not clear whether these colonies were founded by birds descended from those nesting at the few remaining upland snag-nesting sites or from those occupying coastal marine nest box colonies with a very different history of habitat use.

As a local example of nest site relocation in Puget Sound, over a decade ago the Seattle Harbour Authority wanted to remove a large number of abandoned pilings from the harbour, some of which supported an active martin colony and held occupied nest boxes, so the SHA provided support to move the housing (primarily gourds as I

recall) over the winter to a nearby fenced but otherwise open upland area at Jack Block Park. At first this relocation appeared quite successful, as adult martins returned after the pilings were removed and found that the gourds added at Jack Block Park provided the nearest suitable nest sites, but since then the colony has slowly died out (unless something has changed within the last few years), possibly due to lack of recruitment of sufficient new yearling subdults to sustain it, which may have preferred to join offshore colonies instead.

Adult martins will begin returning to the East Bay site to nest starting in another ~2 weeks, so **it may be too late to disturb the nest boxes this year until fall**, since active martin nest sites are likely protected under federal and state legislation and their disturbance may require a WDFW-approved mitigation plan. It's possible that in future, after the pilings are removed, the returning adults will attempt to use a suitable nearby upland site if appropriate housing is provided, but unless the site is surrounded by water at least some of the time (i.e. fresh water, intertidal or offshore), there is a good chance it too may eventually be abandoned if new recruits prefer other intertidal or offshore colony sites instead.

So in the short term at least, certainly for this nesting season, the best solution is to leave the pilings and the nest boxes in place if possible, to avoid site abandonment and loss of the colony. However, if it is truly necessary to remove the pilings in the longer term, it would be best to identify another suitable site nearby and install appropriate housing **at least for the nesting season prior to removal of the pilings**, so the birds have an opportunity to become familiar with and possibly occupy the new site before losing their current housing. This is the accepted standard procedure for moving martin housing to a new location, with the transition carried out over two or ideally three years, and in that event, there is a far greater probability of completing the site transition successfully and retaining the martin nesting colony in that area (as we have done here on several occasions). Once some of the new housing nearby is in use, it essentially becomes part of the same colony, and moving the remainder of the housing is less problematic thereafter.

Otherwise there is a high probability the returning adults will simply relocate to other colonies when they find their previous housing gone, and the site will likely remain vacant until at least one pair of subadult recruits finds the new location sufficiently attractive to move in and attempt to found a new colony. The time required will be a function of overall site suitability and could take a number of years (as noted above, we have seen nest boxes at upland sites evidently unsuitable to martins ignored for over a decade so far, perhaps indefinitely, so it's important to get the site conditions right). In general, upland sites and particularly sites with shrub cover or within 50-100m of trees or other taller structures are unlikely to be successful in the long term.

Housing: The choice of types of artificial housing that can be used successfully with Western PUMA comes down to standard starling-resistant single wood nest boxes or natural or artificial gourds - our birds have not yet adapted to the very high density of eastern condo-style housing, which also introduces a number of problems (e.g. with easy transfer of parasites and diseases between nests), so is best avoided for that reason. Wood pilings and posts are well-suited to mounting nest boxes as well as gourds, or gourd rack-and-pole systems can be used at upland and water edge sites. The latter are more subject to damage from vandalism and severe weather, so are best avoided at unsupervised sites with public access, and should be taken down. cleaned and stored for the winter, so more active stewardship involvement is required, but they are well accepted by western martins (as for the eastern birds) for reasons we don't yet fully understand. Those cc'd above can provide more extensive information on the active and potential PUMA stewardship groups in the Olympia area that may be able to help.

Suitable Alternate Sites: Thanks for providing the maps of the area - I have actually been to this site several years ago, on the way to our WPMWG fall annual meeting (which alternates between the Olympia Forestry Sciences Laboratory and the Gifford Pinchot Forest Headquarters in Vancouver, WA, in successive years), and at least Stan Kostka, Tammy Schmidt and Michelle Tirhi are familiar with it as well. From the maps, there appear to be a number of other *possibly* suitable locations for a martin colony nearby, with the installation of appropriate housing supports in some cases, including several nearby marinas in East or West Bay (it's best to place nest boxes near the perimeter initially) and surrounding fresh water sites (e.g. Capitol Lake - perhaps the best option - or maybe Bigelow Lake or D. Miller Lake?). It would be best to have someone both familiar with PUMA nest site

requirements and more familiar with the immediately surrounding landscape of Olympia (see cc list above) inspect these and any other nearby suitable locations and provide recommendations.

As regards the outcome of similar piling removal issues with martin housing in other jurisdictions, the following notes may be of interest:

A piling removal situation I recall in OR concerned decommissioning a foreshore log booming lease on the Columbia R., which required removal of all the pilings (including those with the late Dave Fouts' nest boxes for an active PUMA nesting colony), unless some legal entity agreed to assume the foreshore lease and pay the annual lease fees to the state. Since PUMA are classified as a Special Concern (critical) at risk species in OR, the state eventually assumed responsibility for the lease (or the portion of it with the pilings with nest boxes) and the martin colony remained.

Here in BC, where the issue arose recently, again with decommissioning of an intertidal estuarine foreshore log booming lease, it came down to a trade-off between the Habitat Branch of our Min. of Env., which wanted the nest boxes to remain as needed nesting habitat for PUMA (formerly Red-listed and now Blue-listed in BC, since we have none remaining using natural cavities in their original 'wild' habitat) and the Lands Branch of MoE, which wanted the pilings removed by the lease-holder to restore the site to original condition. The issue was resolved by including the group of pilings with the nest boxes in an extension of a nearby habitat reserve to be retained, and removing the others. This also resulted in a joint report we prepared for the Habitat Branch of the MoE, identifying and describing all of the ~30 martin colonies on abandoned marine pilings in the Strait of Georgia, almost half of our then ~65 active nest box colonies in BC, so steps can be taken to retain and protect them in future.)

[In another estuarine situation here, where martins were using nest boxes on several old and long abandoned badly decayed untreated pilings that were about to fall (and most have since done so), we obtained permission and resources to have two steel pilings driven adjacent to the old piling site. Pile driving equipment was already on site for other reasons and the work was donated as part of mitigation for other work. We transferred the boxes to the new steel pilings without a problem and the martins continue to use them currently.]

The common theme across all jurisdictions is that so far it has usually been easier to simply retain the pilings with nest boxes for the foreseeable future (and far less expensive in the absence of a funding source for removal and mitigation costs) until a practical alternative is found, rather than install other structures to support the nest boxes as mitigation or risk trying to relocate the nest boxes elsewhere. However, if the pilings must be removed, it may be possible to retain the martin colony at a nearby location with a little time and advance planning, if a suitable alternate site can be found. Failing that, the martins will likely relocate to other existing colonies and the local colony will be lost.

I hope some of this information is helpful. Please let me know if you have other questions or need additional information. Good luck.

Cheers, ...Bruce

Bruce Cousens, B.Sc., M.Sc., R.P.Bio., Senior Biologist,
BC Purple Martin Stewardship & Recovery Program Coordinator,
Georgia Basin Ecological Assessment and Restoration Society
PO Box 41012, RPO Woodgrove Nanaimo, BC, CANADA V9T 6M7
Phone/msg./fax: (250) 758-2922; E-mail: <pmartins@island.net>