

“Why Leave Dead Pines on the New College Campus?”

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When asked why leave dead standing timber, particularly pines, on campus, the most frequent and most glamorous answer involves invoking any of the several Osprey nests on campus. The Osprey is the poster child for standing dead pines (snags), since these durable trees are the preferred nesting sites for Ospreys (Bald Eagles prefer live pines). The juxtaposition of good fishing in the bay and snags on our bayfront campus allows us to witness the annual magnificent drama of nesting Ospreys using pine snags that have been deliberately left on campus for at least the past three decades to support Osprey nesting and other wildlife.

The danger, of course, in linking snag preservation solely to Osprey's nests is that some people then want to conclude the only role for dead trees is to support Osprey nests, leading them to ask why we don't simply leave two or possibly three dead trees for the Ospreys and remove the rest.

One Osprey-centric reason for leaving more dead trees is that Ospreys don't simply require dead trees to raise young; they also require dead twigs and branches to construct their nests. While it is possible that they may sometimes walk about on the ground looking for fallen twigs and branches, we've never seen that behavior. Instead, many on campus have seen an Osprey in flight approach a dead branch, talons outstretched, and attempt to snap it off in mid-air. When successful they take the branch, twig or (near the end of nest-building), garland of Spanish moss to the nest site. Thus successful nest building depends on a reliable supply of dead twig and branches. While most trees have some dead wood, recently-deceased trees have a lot of dead wood, facilitating, if not enabling, nest construction.

In addition, even though a lot of effort goes into constructing a nest, Ospreys periodically relocate and build new nests elsewhere, which (if we want them to remain on campus) requires a supply of potential alternative snags. In the past 10 years alone, six different campus pine snags have been used as Osprey nest trees.

But Ospreys are only part of the snag habitat story. Exclusive focus on one glamorous species runs the risk of minimizing all the other species that have special relationships with dead trees. In addition to nesting habitat for Ospreys, pine snags provide crucial resting, roosting and feeding habitat for many species of birds.

While it may seem trivial, many, if not all, species need places to rest or sleep. And many birds prefer leafless trees for resting or roosting. While it was up and running, the campus wildlife sighting website documented use of dead pines by eagles, wood storks, white ibis, vultures, and wood ducks. Migratory Kestrels regularly show up on campus in winter and use snags as perches for hunting.

Unexpected snag uses also occur. A pine snag at Caples contained a colony of honeybees^[i], and an Osprey nest was commandeered in 2007 by a pair of Great Horned

Owls, which successfully fledged young. It is believed that pair of displaced Ospreys relocated to the snag southwest of Pritzker Marine Science Building – emphasizing the need for a succession of snags.^{ii[iii]}

In addition to the platform nests used by Ospreys and Great Horned Owls, snags frequently contain cavity nests. Florida bird species on campus known to depend on snags for either forage or nest sites and cavities include Downy Woodpecker, Red-Bellied Woodpecker, Pileated Woodpecker, Northern Flicker, Great Crested Flycatcher, European Starlings, Nanday Conures, Osprey, and Great-horned Owl. Additional bird species that could potentially use snags on campus for nesting and forage are Bluebirds, Black-bellied Whistling Ducks, Wood Ducks, and Red-headed Woodpeckers. According to Florida Urban Wildlife Extension Specialist, Joe Schaefer, Florida possesses 25 cavity-nesting bird species^{iii[iiii]}. While many can be induced to use nest boxes, some (such as the Red Cockaded Woodpecker) will only nest in excavated tree cavities.

According to one Florida Fish and Wildlife Conservation Commission website nearly one-third of wildlife species depend on dead trees or partly dead trees.^{iv[iv]} Rotting wood provides a lavish source of food for insects, and these insects support woodpeckers and many other birds. While mammals and reptiles no doubt utilize dead trees (some snakes favor laying their eggs in decomposing wood) it is worth considering less conspicuous forms of life that play an important role in the decomposition of pine snags. The softer outer wood attracts termites, which in turn are prey for other species. Fear of encouraging termites is one reason often cited for removing dead trees. However, even after dead trees are sawn off and their stumps ground down, plenty of root wood remains below ground to support termite colonies. Jono must have spent close to a half hour this past spring on his hands and knees showing several nearby students a continuously erupting plume of winged termites emanating from a inconspicuous hole in the ground near Four Winds Café—the site of a previous pine stump, now ground down.

In addition to termites, other invertebrates and fungal decomposers set to work on dead pines. Most decomposers seem to be thwarted by the resin-laden “lightered” portions of some of the older trees. It is worth noting that while considered softwoods^{v[v]}, many older slash pines develop a core of resin-permeated wood that is extremely durable. Flooring websites claim that this “heart pine” is comparable in hardness to red oak and harder than teak. [People with heart pine homes complain that they have to drill a hole before they can drive a nail.] Thus while the softer outer pinewood decomposes more rapidly after death, those pines with resin-laden hearts can stand for decades, making them great choices for nest trees.

Not only do dead pines on campus provide important, if not essential, habitat; their role is magnified by our local context in a primarily residential area. There are at least three factors involved.

First the extent of local pine-dominated ecosystems continues to diminish. In recent years significant habitat has been lost at Crosley, and at forested sites north of the airport, while extensive new development is planned along the northern shore of Sarasota Bay in

Manatee County. When live standing timber is cleared for residential or other development, snags typically go as well.

Secondly, while homeowner guidebooks for providing wildlife habitat invariably recommend leaving dead trees, pine snags are a luxury few homeowners perceive they can afford. Few homeowners have the space to allow snags to stand (and ultimately fall) without putting their own, or neighbors, property at risk.

Finally, in addition to parcel-scale loss of pines habitat and the prompt removal of dead pines in adjacent neighborhoods, we are seeing significant loss of mature live pines in the residential neighborhoods surrounding the college. On the block we live on, at least five large mature live pines have been removed in the past 16 years. Anecdotally homeowners cite the risk of these trees falling on their houses in storms, a stance increasingly taken by the insurance industry. Unreasonable fear of falling trees has led to a new phenomenon: residents engaging in “chainsaw backlash” – the practice of removing big old healthy trees (that probably have already weathered several hurricanes) because they MIGHT fall on the house. [Studies conducted in the wake of recent hurricanes suggest that slash pines are not particularly vulnerable to wind toppling, but homeowners probably reason: ‘why take a chance?'] Since very few slash pines are being planted in adjoining neighborhoods and since pines are not well adapted to colonizing residential space (as both oaks and cabbage palms are) the supply of mature live pines in the surrounding area is declining far faster than might be attributed to lightning, old age and disease alone and there is no reason to anticipate any significant rebound as today’s young pines mature. Thus the potential supply of future pine snags in neighboring residential areas is extremely limited. Certainly Crosley and the Ringling Museum could likewise contribute, but we are unaware of any official policy to retain dead pines on these properties. For the time being anyway it seems as though pine snags will either be protected on our campus or nowhere hereabouts. These contextual realities magnify the relative importance of pine snags on our campus.

The following reasons are, we believe, secondary or ancillary to the demonstrable role dead pines play as habitat, not only on our campus, but throughout the entire area. While each may not, by itself, warrant protection of snags; when taken in concert with the significant habitat values they ratify the diverse benefits of retaining as many snags as possible without jeopardizing campus safety.

SYMBOLIC PLACEHOLDERS IN A LANDSCAPE OF LOSS

Anyone interested in protecting and increasing the number of live trees on campus, particularly pines, should consider the important symbolic role standing dead timber (or even stumps) play in reminding the campus community of what has been lost. We have lost dozens, if not hundreds of pines on our campus since the college’s inception, yet for the most part they have been removed and the stumps ground to below the soil surface. New arrivals to campus have no way to assess or visualize what has been lost. If you don’t think the visual impact of something marking what is lost is significant, consider any cemetery. All the graves could be marked by inconspicuous markers flush with the turf. But the presence of the gravestones communicates the magnitude of loss in a way

that expansive lawn cannot. Just so, each dead tree that remains on campus is a mute reminder of what has been lost – a placeholder that is an implicit argument for the planting or natural recruitment of more trees to replace those lost. By expunging dead pines we contribute to the perception that the current extent of the native tree canopy is somehow representative of the historic condition.

ANATOMY AND AESTHETICS

Having helped teach what amounted to two classes that could be summarized as life drawing of trees, Jono can attest that dead trees have played an important educational role, if only to help fine arts students better understand the structure or armature of the trees. Live trees are like clothed models -- once disrobed the fundamental design is more accessible. And it can be argued that there are several places on campus where the silhouettes of snags contribute dramatic foreground context to vistas.

POTENTIAL LIGHTNING RODS

Although we lack data for the following argument, we think it is somewhere between plausible and likely that standing dead timber could and does sometimes attract lightning, thus sparing nearby living trees the debilitating, and frequently fatal, shock of having long strips of bark blown off in an instant. With two large pines struck by lightning so far this summer on campus, it is easy to see how anything that reduces lightning mortality should be considered an ally in protecting the remaining tall trees on campus.

MOMENTO MORI

Sociologists, philosophers and other critical thinkers that contemplate the human experience might appreciate the presence of dead trees on campus, if only as a jumping off point for a discussion of our culture's general squeamishness regarding death. The dominant landscaping paradigm in our culture is to remove dead trees, even when safety is not an issue and in the face of their obvious habitat role. It is quite possible that people simply do not like to be reminded of death. There are, no doubt, sound biological reasons to not allow human or other animal corpses to lie about campus, but since dead trees seem to lack the aspects of pestilence and putrescence we associate with animals, they may be acceptable surrogates for contemplating the less popular aspects of life. Alternatively, and more positively, pine snags allow us to glimpse what happens beyond death, beyond any sadness we may associate with drooping brown needles to witness how life persists and flourishes in the wake of death– how materials are not merely recycled but contribute to myriad forms of new life that would never exist without their “pre-deceasors”.

EDUCATIONAL/SCIENTIFIC ROLE

As already alluded to, dead trees have an educational role to play, not merely in the social sciences and humanities, but in the natural sciences as well. One student is currently contemplating a thesis dealing with cavity nesting birds. Many cavity nesters on are the decline, partially because exotic species such as starlings and parrots displace them, but also because of the decline in dead and rotten trees that facilitate cavity nesting.

There is plenty of scientific literature documenting the role snags play in providing wildlife habitat. Google Scholar finds over 2,410 “snag forest habitat” articles, JSTOR finds 507 articles for “snag forest habitat” and CSA Illumina found 176 peer reviewed journal articles and one book.^{vi[vi]} Some examples of snag research follow:

In a review of 116 research articles on bird-forestry relationships from 1960-2002, 80% of the articles reported net species loss related to snag removal.^{vii[vii]}

A study in northern California compared the number of cavity nesting birds between two sites. The site with 3 times more snags had 15 times more cavity nesting birds. Tree size, the rate at which new snags were generated, and the mode of tree death were important factors. Although there are many ecological differences between our campus and these study sites, there is a strong indication from this study that more snags mean more cavity nesting birds, and that snags at various stage of decay may be important.^{viii[viii]}

A study in Seattle evaluated cavity-nesting birds in snags in new and old suburbs. Although suburban settings had low densities of cavity nesting birds compared to wildlands, these birds nested successfully and produced fledglings in more than half of their attempts. The species richness of cavity nesting birds was highest in suburban areas where the remaining forest was not fragmented and adjacent to highly mixed urban landcovers. Although Florida forests are different than those in Seattle, we should consider our snags to be valuable cavity nesting habitat, even more so when snags occur within clumps and patches of trees.^{ix[ix]}

In addition to the educational role afforded the New College community, dead standing timber represents an opportunity to educate campus visitors regarding the role dead trees can play. As outlined initially, this starts with the crucial role pine snags play in Osprey nesting. Visitors may conclude that campus managers are simply being lazy, but the facts are it takes far more time and energy to protect dead pines and their roles on campus than it would to routinely and unquestioningly eliminate them.^{x[x]} There are few other places (other than college campuses) where critical thinking about presumably settled matters would allow consideration of behaviors commonly taken for granted.

ZERO SUM BUDGETARY CONCERNS

Finally, the least noble, but possibly most important reason to leave snags may be pecuniary. It can be very expensive to remove large dead trees. Our most recent estimates (August '07) include charges of over \$1,000 to remove a single dead slash pine. Thus every snag that can be left in place represents significant landscaping dollars that could be spent on other projects, including planting more trees. Thus it is possible that even if none of the other values existed, it would be in the college's best interest to leave whatever snags we can, if only to make it possible to improve the rest of the landscape.

ⁱ Wild honeybee colonies have also been found in both dead cabbage palms and dead oak limbs on campus. In fact as of August 2007, there were one of each.

ⁱⁱ On September 16, 2005, New College of Florida student Bryson Voirin put on a climbing harness and climbed a dead slash pine on campus armed with a cordless drill, some lag bolts and four or five rot-resistant heart pine limbs. Operating on a hunch and a hope, Voirin was using canopy research skills honed at New College in an attempt to affect the behavior of ospreys, fish-eating raptors found around the world.

New College is no stranger to Ospreys, which prefer to nest in dead pine trees close to the water. The New College campus has become an important local site for Osprey nesting because the campus can tolerate some dead standing timber. When mature pines die on campus they are evaluated to see if the threat of falling branches poses a significant danger to people or property. Where dead pines pose minimal risk, they are left standing for a suite of birds and insects that depend on dead trees for habitat. In addition to Ospreys, Bald Eagles, wading birds and woodpeckers are commonly seen in snags (dead standing trees).

Every year for at least a decade, two pairs of Ospreys have nested in various dead pine trees on campus. Beginning in 2003, one pair nested in a pine that overhangs a road and parking area near Cook Hall. This posed a dilemma for campus managers – remove the pine and displace the ospreys or leave the pine and contend with the possibility of damage. State rules require that if a nest tree is removed, an alternative nest platform must be provided nearby.

A two-track strategy was developed. The nest tree was protected, but danger was reduced in 2005 by removing weak branches (those with the greatest potential of falling). It was hoped that the ospreys would abandon the nest at some point, relocating on their own and thus allowing the tree to be safely removed. Last winter ('06) the ospreys successfully fledged young from this tree. This winter ('07) the ospreys were seen fishing and eating around Cook Hall, but not tending to this nest. In January, we realized that a pair of Great Horned Owls had taken over the Osprey nest.

The unanticipated owl situation led to speculation about whether and where the Cook Hall Osprey pair might build a new nest. On Monday an Osprey was seen flying over the Four Winds Café with a streamer of Spanish moss in its talons. Since Ospreys eat fish, not plants; this was seen as a diagnostic sign of nearby nest building.

Then 515 days after Bryson's climb, Julie Morris and Heidi Harley both noticed that a new nest had appeared on campus – in the dead pine Bryson had climbed 17 months earlier. Bryson's mission had been to create a stable "starter nest" – the type of nest foundation Ospreys might build if they had access to lag bolts and cordless drills.

While Ospreys are well known for taking advantage of built structures such as channel markers and transmission lines, campus Osprey watchers had no idea if Ospreys would be drawn to a starter platform in a standing dead pine tree. Perhaps the Osprey pair would have selected this tree on their own, but it is reassuring to know that the bolted foundation branches should make this nest less vulnerable to being blown out of the tree, a fate that has befallen other nests on campus.

The nest tree is located near the southwest corner of the Pritzker Marine Science Building and can be seen from Pritzker and Bonseigneur. These Ospreys have demonstrated that they are tolerant of normal campus activities, and there is no harm in admiring the nest or watching their behavior. Obviously any provocative activity near the nest should be reported to campus police.

ⁱⁱⁱ^[iii] <http://209.85.165.104/search?q=cache:Del03eCsRxgJ:edis.ifas.ufl.edu/UW058+Joe+Schaefer+cavity+nest&hl=en&ct=clnk&cd=1&gl=us&client=safari>

^{iv}^[iv] <http://myfwc.com/viewing/inyourbackyard/deadtrees.htm>

^v^[v] The terms “softwood” and “hardwood” are generic shorthand terms used to distinguish conifers (ostensibly soft) from non-coniferous broadleaved (presumably hard-wooded) trees. Exceptions abound. Softwoods such as Yew, Douglas Fir and the resin-saturated “Heart Pine” sometimes found in Slash and Longleaf pines are harder than many hardwoods, while trees such as Basswood (Tilia) and Balsa (Ochroma) are hardwoods renowned for being easy to work (hence their popularity with model-makers and wood-carvers).

The older Slash Pines on our campus frequently contain both soft wood that decomposes in a few years and resin-saturated wood core that can persist for decades. Thus, ironically, with the exception of Live Oak, our softwood pines may contain some of the most durable wood on campus.

In addition to be durable, Slash Pines may be the most venerable life forms on campus. It is possible but unlikely that any other trees on campus are as old as our pines, which if comparable to pines on Crosley, can be 150, 200 or older.

^{vi}^[vi] Some references refer to submerged snags in streams and rivers

^{vii}^[vii] http://www.fs.fed.us/psw/publications/documents/psw_gtr191/Asilomar/pdfs/345-372.pdf

^{viii}^[viii] http://www.fs.fed.us/psw/publications/documents/gtr-181/017_Zack.pdf

^{ix}^[ix] [http://www.bioone.org/perlserv/?request=get-abstract&doi=10.1650%2F0010-5422\(2005\)107%5B0678%3AEOUSOS%5D2.0.CO%3B2](http://www.bioone.org/perlserv/?request=get-abstract&doi=10.1650%2F0010-5422(2005)107%5B0678%3AEOUSOS%5D2.0.CO%3B2)

^x^[x] An anecdote from nearby Eckerd College illustrates the depth of misunderstanding and vilification that can exist regarding dead pines, even at an educational institution. Several years ago we were asked to participate in an Eckerd program for high school students. Our segment involved interpreting the campus landscape for the visiting students and to prepare ourselves we toured the campus a couple of days prior to the session. We scouted a large recently dead pine that would serve to cue our discussion of the valued role of such trees. On the day of the tour, we felt confused and disoriented as we approached the site of the pine. It wasn't there. Upon examination we found narrow bands of sawdust in the grass – evidence of where the pine had been sawed up prior to a hasty removal. When we inquired we were told the current college President had a standing order to rapidly remove any dead pines, lest Bald Eagles start homesteading. Because of federal regulations that restrict activities near eagle nest trees, the college President probably believed he was protecting the institution from possible red tape entanglement. If the account is true, he was willing to “redline” eagles, depriving the campus community of the majesty (and honor) of our national symbol for fear it might restrict some campus project. The irony is that Bald Eagles strongly prefer live trees to dead, so the campus was removing one of the few trees that could safely be placed in the not-likely-to-support-eagle-nests column.