

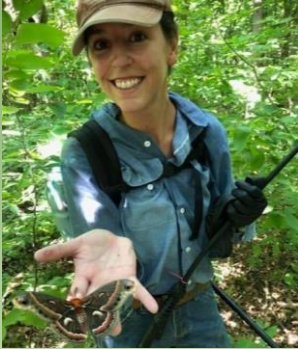


@ORC

April 2021

Issue 121

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@ORC is a monthly publication by the IL Department of Natural Resources Office of Resource Conservation about exciting and wonderful things ORC staff are doing throughout Illinois.

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Aerial Spraying Used to Tackle Bush Honeysuckle on Private Lands in Illinois

By Alex Davis and Nicole Morris, Private Lands Division

Invasive species like bush honeysuckle have become an increasing problem for land managers in Illinois and other surrounding states. Managing non-native, exotic/invasive species is made that much harder for managers in Illinois because 97% of the state is privately owned. There are several IDNR programs that specifically encourage land management on private lands, such as the Conservation Stewardship Program (CSP), the Illinois Forestry Development Act (IFDA) cost-share program, and the Illinois Recreational Access Program (IRAP). All provide valuable services to Illinois landowners by securing the health of native plant and wildlife species. Removing invasive species is often the first step of habitat management plans written by these programs, and many are now utilizing a very innovative and effective treatment known as aerial spraying.



Heavy bush honeysuckle infestation on an IRAP-enrolled property

In 2014, IRAP staff Bob Caveny and Phil Cox began efforts to have vast tracts of timber infested with bush honeysuckle sprayed with Rodeo herbicide from the air. This method was first utilized in neighboring Missouri, where it became evident that managers can use it to treat a far larger area than they could from the ground. Two IRAP sites were selected as test sites, resulting in a total of 160 acres sprayed in only 25 minutes. This first round of spraying achieved a 68% kill rate. Spraying efforts were expanded in 2015 when research plots were added across an additional 10 state-managed sites, again utilizing fixed-wing aircraft. Results of 2015 spraying only yielded a 50% kill rate, which led to efforts being split between fixed-wing aircraft and helicopter application in 2016 to determine the greater effectiveness of one versus the other. Aerial spraying by helicopter was deemed more cost-efficient than fixed-wing aircraft, and the kill rate jumped to 80% with the addition of prescribed burns being conducted the following spring.

Efforts to aerially spray around Pere Marquette State Park began in 2017, but there were various ecological and circumstantial complications preventing progress being made until the fall of 2020 when some 1,000 acres were treated. (One year, for instance, posed the issue of restricted airspace associated with a presidential visit to St. Charles, Missouri). Contractors were employed to apply Rodeo at 3qts an acre for a cost of \$24-82/acre (which includes the cost of chemical).

In order to effectively utilize aerial spraying, one must be sure to hit the leaves of the targeted species while they are still green and taking up nutrients, while also ensuring that the leaves of more desirable species like oaks, Christmas ferns and sedges are dormant. The best way to know whether the “window” is still open is to shake the branch of an invasive shrub and watch to see whether the leaves easily fall off the branch. If the leaves stay in place, the window is still considered “open”. One is advised to walk in at least 100 yards to check the leaves of plants in the interior rather than those along the edge. The window for spraying typically runs anywhere from early November to early December. Because aerial spraying tends to provide good “top-kill”, there may be smaller plants left behind beneath bigger plants. Spot treatments and subsequent spring prescribed burns are therefore often necessary, as both can kill smaller plants that may have been missed.



Helicopter filling up with chemical used to aerial spray bush honeysuckle



Post aerial spray of bush honeysuckle infestation

Indeed, one of the unique benefits of aerial spraying is that it can change the existing schema of removing invasive species first and applying Timber Stand Improvement (TSI) after. Up until more recently, it had been more common to apply TSI first, and then treat invasive species, which could cause issues when vegetation or debris in the wake of mulching and opened canopies restricted visual or physical access. Managers therefore began writing plans that called for removing invasive species before any trees could be thinned from the property, which can be a time-consuming process. Aerial spraying can conversely be applied before or after TSI is implemented, which may better ensure a better kill rate of invasive species.

Aerial spraying is therefore viewed by land managers and landowners alike these days as a much more effective, affordable, and time-saving way to treat a large infested area. Although the window to apply aerial spraying can fluctuate and additional “spot-treatments” are often necessary to hit what might get left beneath the top-layer, it still provides greater coverage in shorter amount of time. This helps to reduce exposure and the overall number of follow up treatments. Other methods like manually or mechanically cutting and treating stumps with herbicide using a ground crew or a mulcher can take anywhere from weeks to months and cost anywhere from \$200-\$400 per acre. However, the price of helicopter aerial spraying can fall anywhere between \$50 to \$85 per acre. Moreover, the short duration of application limits the disturbance to wildlife on the property.

Hearing testimonials from landowners who are utilizing aerial spraying to tackle bush honeysuckle appears to be the number one way this method has gained greater visibility and popularity among Illinois landowners. For instance, both IRAP staff and IDNR District Foresters will recommend aerial spraying if landowners have a bad

infestation on their property. However, landowners are now frequently already aware of the practice before enrollment or having it suggested to them.

IRAP provides annual stipends to landowners who lease their property for semi-controlled public access for specific outdoor activities. Landowners also receive support with habitat improvement on their property, including the application of prescribed burns, timber stand improvement, tree and prairie plantings, and ground and aerial spraying of invasive species. It's estimated that about half of IRAP-enrolled landowners hear about aerial spraying from other landowners and want to enroll into IRAP just for the assistance with removing bush honeysuckle. Others, particularly those near state parks like Pere Marquette or Beaver Dam where the practice was first employed, may have become aware after having witnessed it or being notified about by land managers, contractors, or neighbors having it applied. Some landowners do their own research of course, stumbling across the practice online when searching for invasive species removal methods. Others may have attended presentations given, or observed work being done by federal agencies like the USFWS's Partners for Fish and Wildlife, the Forest Service, or the US Army Corps. of Engineers. IDNR press releases and associated media may be another source of information.

Landowners are introduced to aerial spraying through the IL Forestry Development Act (IFDA) cost-share program in much the same way. The IFDA cost-share program operates much like the Conservation Stewardship Program (CSP), in that when landowners enroll, they are expected to provide an IDNR-approved forest management plan and implement it, for which they will receive cost-share assistance. (CSP, however, operates on the basis of providing a tax-break). Prior to 2017, exotic plant removal was not written into the IFDA cost-share program's administrative rules (as invasive species were not as much of a problem at the initial launch of the program). IFDA management plans are often a reflection of District Forester (DF) expertise and private consultant resources and cost-analysis. However, a DF may recommend aerial spraying after looking at a management plan or talking to a landowner who has a heavy infestation of bush honeysuckle. Private forestry consultants may also recommend aerial spraying.



Some infestations are so thick that landowners feel overwhelmed by the prospect of having to treat it.

Another important factor in aerial spraying's growing use and popularity is its visual "wow-factor". While the prospect of aerial spraying may initially cause concerns among some landowners about damages to crops or residential property, many who were initially skeptical tend to change their mind after seeing the profound results of aerial spraying. Aerial spraying offers the chance to make a real, lasting dent in the effort of clearing and maintaining the quality of one's timber. For some, this can offer hope and address the feeling of demoralization experienced by many when faced with the overwhelming task of removing persistent, invasive bush honeysuckle from a large area. There is nothing worse than returning to a site that has been treated manually or mechanically, only to see it looking much the same as it did before because of lack of continued maintenance. Aerial spraying can also address the desire most landowners have to see immediate results.

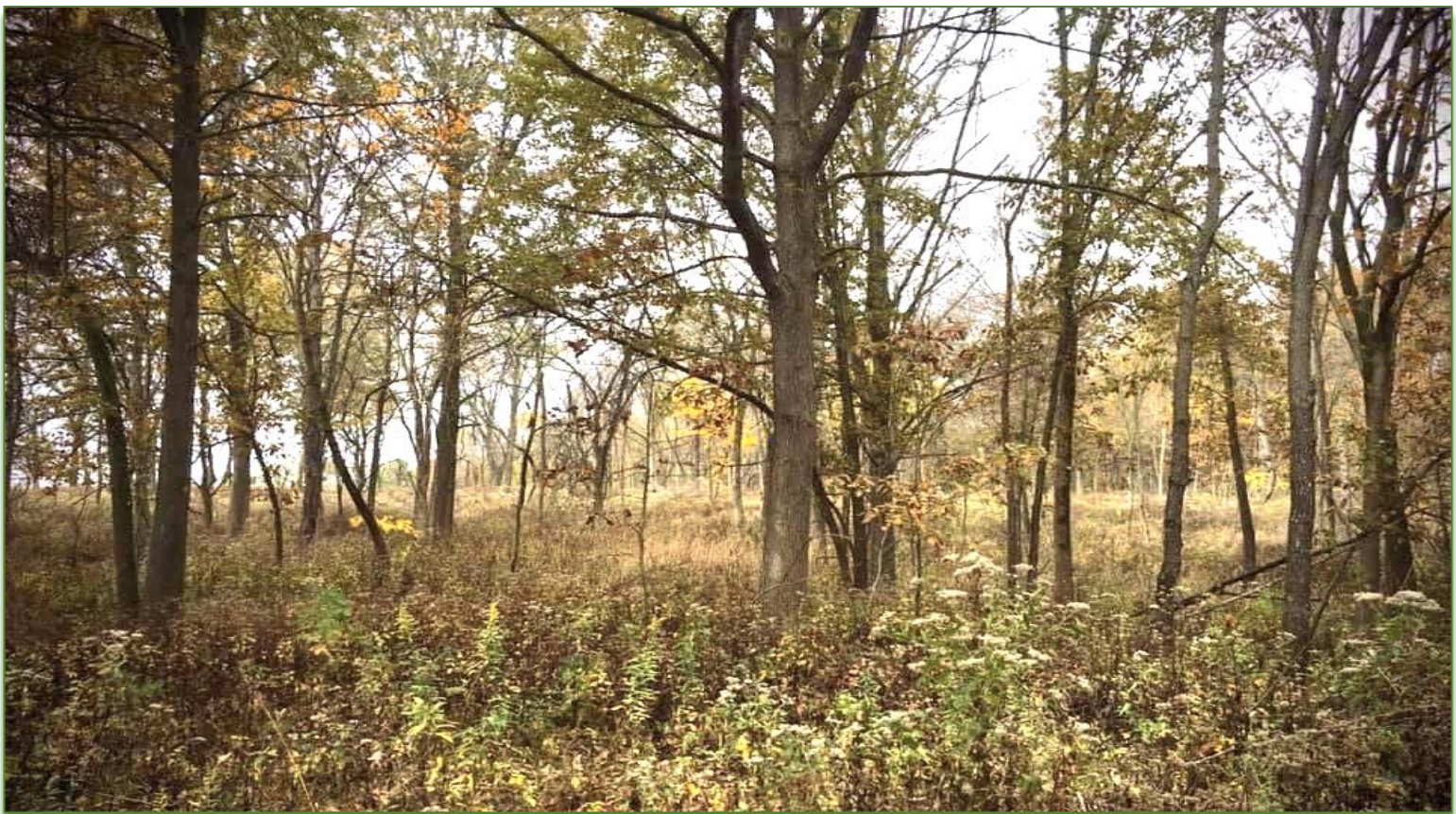


Virginia Bluebells spring to life after aerial spraying of bush honeysuckle giving immediate results

Conversations with landowners who have had aerial spraying applied on their property have indicated that the practice will likely remain popular in years to come. Most landowners end up enrolled in IRAP or the IFDA cost-share program after seeking out ways to improve habitat or manage property on their own once invasive species became a more obnoxious problem. Some landowners may conversely know very little about invasive species before enrollment in such programs, and instead were looking for assistance to attract once prevalent game species like quail and pheasant back to their property. Bob Caveny had many landowners reach out or be referred to him for such reasons, which he in turn used as an opportunity to showcase the effectiveness of aerial spraying. Bob took several interested landowners to sites where aerial spraying had been applied back in 2014-2015, leaving many of them amazed and astounded by the results. Many of these landowners were then much more likely to try and recommend aerial spraying to neighboring landowners, friends or family who showed interest in land management, regardless of whether they are enrolled in IRAP or other IDNR programs.

Most landowners cite noticeable, even drastic differences after just one application, and therefore feel it is well-worth doing again. Many will invite friends and neighbors over to view management results and will then refer them to IRAP and or other IDNR programs. Landowners have cited the presence of new plant and wildlife species after aerial spraying has been applied, especially after it has been followed by other management practices. There may also be huge improvements to seasonal mushroom hunting and other foraging opportunities.

Not all acres can realistically be sprayed due to factors like proximity to residential areas or cropland, or impenetrable canopy. Creating a buffer between properties, however, can help alleviate concerns about drift. Many applicators are now taking advantage of the new market for aerial spraying of bush honeysuckle in the fall. Up until more recently, most applicators had the bulk of their work scheduled in the spring to do row crop pesticide application. Although there does exist some concern over private landowners attempting to employ aerial spraying contractors on their own (due to the various ecological factors determining the timing and efficacy of application), many of the pilots doing it now have worked with IDNR. Managers are therefore growing more confident about private contractors utilizing the practice in future.



The results of spraying have been hailed by many landowners as “astounding”.