

## Drones: Asset or Menace?

by Laura Lovett

Once considered an expensive tool for military and government use, unmanned aerial vehicles (UAV) or unmanned aircraft systems (UAS), commonly known as drones, have soared in popularity in recent years. Consumer sales of drones surpassed \$1.2 billion last year. A drone may be categorized as either for recreational or nonrecreational (e.g., commercial) purposes, and different rules apply for each type. If you make any money from the use of your drone, such as selling photographs taken with it, or use it as part of a business service, such as inspecting roofs for damage, you move into the commercial category where the rules are more stringent.

The increasing use of drones has proved to be both a blessing and an aggravation. Most of us like our local parks and wild lands for their beauty, quiet, and solitude, making one person's toy and hobby another person's possible annoyance. Potentially more important is the risk they pose to people, natural ecosystems, and native wildlife. If used improperly a drone is, after all, a "flying blender with 4 blades" that can cause damage and pose a fire risk. Raptors have been known to attack them, and in another local instance nesting shorebirds, mistaking the drone for a predator, were disrupted from their nests. In a couple of known instances, drones have been illegally flown over active wildfires, forcing CalFire to ground their aircraft.

Most local jurisdictions, where wide-open spaces tempt drone flyers, have restricted them. While the FAA has sovereignty over all U.S. airspace, a local authority can forbid drone takeoffs or landings from a parcel of ground beneath that airspace or ban individuals from controlling a drone while located within that parcel.

Each of the 22 state park jurisdictions has the discretion to determine the rules that apply to UAVs in their district. Flying a drone in state parks along the Sonoma and Mendocino coasts is permitted under California State Parks policy, but Marin is off limits. The Bay Area District of the State Parks, which includes sites in both Marin and Sonoma, has chosen to restrict them. All parks and open spaces managed by Marin County Parks are off limits, as are all National Parks, which includes the 80,600 acres of the Golden Gate National Recreation Area. (The one and only exception is Airplane Hill, located south of the intersection of Panoramic Highway and Muir Woods Road in Mount Tamalpais State Park.) In supporting the ban, park officials cite potential disturbances to wildlife, public safety issues, and negative impacts on other park patrons. If you spot a drone bothering wildlife or people, you are encouraged to report it to park rangers or local law enforcement agencies for that property.

The value of UAVs for conservation and scientific work, however, is proving to be enormous. Drones have been able to monitor and collect data effectively where humans have a hard time seeing or going. The Nature Conservancy uses drones for a number of projects, including monitoring of sandhill cranes in the Delta. Regular and accurate counts of roosting flocks help them track how sandhill crane numbers are fluctuating in response to land management, climate, or other environmental changes. Point Reyes National Seashore has used drones to do surveys of the tule elk and USGS scientists used them to complete bird counts over Tomales Bay. Internationally, drones have been used for conservation purposes that include



*The flying of drones is prohibited in all Marin County Parks, and in all federal and state parklands in the county with the exception of Airplane Hill near Pantoll, in Mount Tamalpais State Park. Photo courtesy of Golden Gate National Parks Conservancy*

monitoring of tree cover, wildlife migration patterns, the spread of invasive plants, illegal logging, endangered species populations, antipoaching surveillance, and surveys of a fire's aftermath (find more at: [conservationdrones.org](http://conservationdrones.org)).

There is still a lot to be figured out, including privacy, safety, efficiency, most effective use, and education of operators on proper conduct. All drones must be registered with the FAA, even for hobby use. Other existing rules include keeping the aircraft within visual line of sight at all times, flying below 400 feet, staying 25 feet away from individuals, and avoidance of stadiums, airfields, and sensitive infrastructure (this last includes the Golden Gate Bridge). It's also forbidden to conduct surveillance or photograph people in areas where there is an expectation of privacy without the individual's permission, such as at a campsite or in a back yard. If you own a drone, apps such as Hover and B4UFLY will help you determine where it is safe to fly and what to avoid. However, the rules will no doubt keep changing as these devices become more popular and new, perhaps beneficial, uses, for them are found.

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