Berkeley UNIVERSITY OF CALIFORNIA Cannabis Research Center

Cannabis Agriculture and Wildlife

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Concerns for cannabis' potential effect on wildlife have been a recurrent part of the conversation around enforcement and management of cultivation for decades. But what scientific evidence do we actually have for these impacts? The Cannabis Research Center has been studying the interface between wildlife and cannabis since 2017, and while there is still a lot we don't know, there are some emerging themes.

Why might we be concerned about the impact of cannabis on wildlife?

Like any other form of agriculture or human modification of the natural environment, outdoor or mixed light cannabis farming has the potential to alter the ways in which local mammals, birds, reptiles, and insects interact with their surroundings. **There are several potential ways in which cannabis farming might impact wildlife, depending on the form of cultivation and specific practices on site,** including:

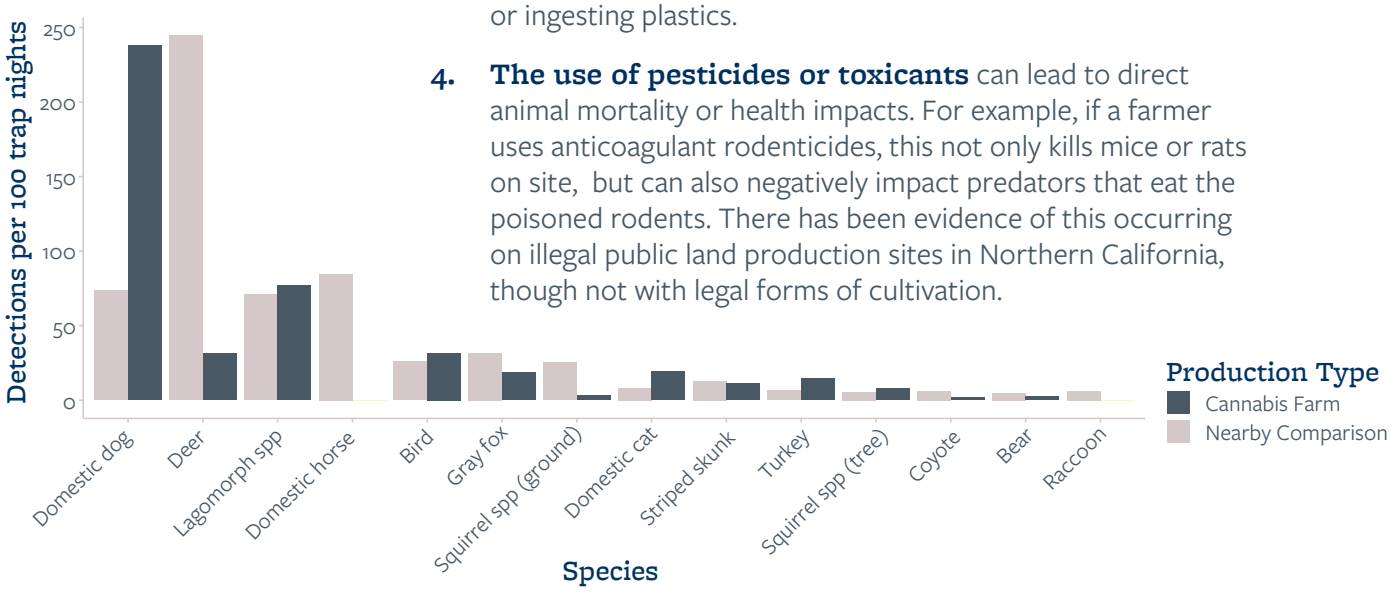
1. **Disturbance from light and noise** (for example, from generators or grow lights) can alter wildlife behavior such that they avoid certain areas or become more nocturnal. Alternatively, some animals (such as moths, starlings, or rats) may actually be attracted to these disturbance sources. These disturbances can have ripple effects on entire food webs and wildlife interactions. We have seen evidence for some shifts in wildlife species found on private land cannabis farms compared to nearby sites.

2. **Modification of natural vegetation** (for example, clearing land for a production site, or fencing off an entire parcel) could reduce the extent and quality of wildlife habitat as well as restrict movement and access to critical resources on the landscape.

3. **Unmonitored use or disposal of plastic** monofilament could result in animals getting entangled and injured in lines, or ingesting plastics.

4. **The use of pesticides or toxicants** can lead to direct animal mortality or health impacts. For example, if a farmer uses anticoagulant rodenticides, this not only kills mice or rats on site, but can also negatively impact predators that eat the poisoned rodents. There has been evidence of this occurring on illegal public land production sites in Northern California, though not with legal forms of cultivation.

Wildlife Species detected from motion activated cameras (see example, opposite page) on and nearby small-scale outdoor cannabis farms.



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These potential impacts vary depending on the location, size, type of production, and specific site-level practices of the cannabis cultivation operation. For example, if a farm is located in an area of high biodiversity, there may be more opportunity for wildlife impacts. At the same time, the types of expected effects vary between greenhouse, outdoor, and public land production. Even within specific types of cultivation, there is variation by individual farm practices and operation size.

Are there practices farmers can take to reduce their impact on local wildlife?

Yes, and many are doing so already. While more research is needed to understand what solutions farmers have already identified and put into practice, the following **steps are likely to reduce negative impacts on cannabis farms, or even provide opportunities for positive coexistence with wildlife**:

- cover greenhouses so that any lights used inside are not visible outside
- reduce or eliminate pesticide use
- keep trash out of reach of animals and remove it from the site regularly
- minimize fencing that restricts animal movement
- leave patches of vegetation or trees intact when clearing cultivation areas.

What are some of the outstanding gaps in our understanding of how cannabis agriculture impacts wildlife?

Most existing research on the impacts of cannabis on wildlife comes from opportunistic studies on public land production sites after they have been raided by law enforcement. These sites are likely not representative of cannabis cultivation as a whole. Other studies carried out by the Cannabis Research Center have focused on observational wildlife monitoring on and surrounding small scale outdoor farms on private land. However, in both these cases, sample sizes are small and non-random. Therefore, much of what we know or infer about wildlife impacts is extremely limited.

The science on how cannabis farming interfaces with wildlife would benefit from understanding more about site-level practices and comparisons between them. This means learning from farmers themselves. Even with studies on known impacts, we are currently lacking data on the scale of these effects. Long-term and broader-scale studies will help answer these questions. And finally, we need more data to help understand the potential tradeoffs between different styles and forms of production.

For more information, visit: crc.berkeley.edu or contact vanbutsic@berkeley.edu

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