

Citizen Science Q&A: Trail Cameras

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Through the Citizen Science Association Law & Policy Working Group, the Emmett Environmental Law & Policy Clinic at Harvard Law School has volunteered to make its students available to answer questions about relevant laws and policies raised by citizen science projects. The questions below were submitted through the working group's [question submission form](#).

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Question 1: What are the rules, for Massachusetts in particular, regarding collection and use of automatic trail cameras to count and classify types of users in certain areas (e.g., canoe or motor boat, solo or group)?

Answer 1: This issue has at least two main components: (a) the issue of access to property to install and maintain trail cameras, and (b) the issue of personal privacy and the collection, storage, and use of images of people.

The issue relating to the installation and maintenance of trail cameras is highly dependent on who owns the property in question. At the federal level, the U.S. Fish & Wildlife Service (FWS) and the National Park Service (NPS) require researchers to obtain permits from the agency before beginning research on land maintained by that agency. Similarly, at the state level, the Massachusetts Department of Conservation and Recreation also requires a permit for research. Installation on municipally-owned or privately-owned land would also require the prior permission of the landowner.

In terms of the privacy issues associated with taking pictures of people, using trail cameras is permissible if the images taken do not violate a person's reasonable expectation of privacy. People generally do not have a reasonable expectation of privacy when they are on public land or land with an easement for public use/navigation. Furthermore, existing Massachusetts data privacy laws likely would not cover the storage and use of images of people when trail cameras are used for research purposes; thus, these data privacy laws likely do not impose additional requirements on researchers using trail cameras. If the images are not being used for commercial purposes, images of people can be collected and stored.

Even if citizen scientists are not constrained by Massachusetts' data privacy laws in taking pictures and recording individuals with trail cameras, researchers should consider the public's

reaction to being surveilled. Providing signs and notices near the trail cameras and at frequently-used access points (*e.g.*, boating launches) to make the public aware of the cameras and their purpose might alleviate potentially adverse responses. One tradeoff, at least for signs near the cameras themselves, is that identifying the location of the camera could lead to vandalism or theft of the camera. Researchers may also wish to consider implementing a standardized data management system to minimize the use of any personal information and images, as well as the risk of possible data breaches, while maximizing the research value of the images.

We discuss the issues of land ownership and individual privacy rights in more detail in our answers below.

Question 2: How do you determine the ownership of the land where you wish to place your research cameras?

Answer 2: A researcher interested in using trail cameras to collect data of trail and/or river usage should first identify the owner of the land or waterway in question.

Land Ownership

Generally, ownership of land can be determined by reviewing maps or locating the parcel of property in the state's registry of deeds. Your state may have much of this information online. For those citizen scientists particularly focused on research in the Commonwealth of Massachusetts, there are multiple tools at your disposal to determine property ownership.

- Massachusetts Interactive Property Map: The Massachusetts Interactive Property Map is an online tool developed by the Massachusetts Bureau of Geographic Information to enable “developers, banks, realtors, businesses, and homeowners to view seamless property and tax information across the Commonwealth.”¹ While this is a helpful tool to start, it is not an authoritative source on property boundaries. Best practice is to double-check the ownership of the property through the registry of deeds.
- Registry of Deeds: The authoritative record of property boundaries is recorded at the registries of deeds. You can search by property owner or street number under the “Search Criteria” tab once you have selected your county of interest.²

Waterway Ownership

Waterway ownership is more difficult to identify than land ownership. Under Massachusetts law, “[t]he owners of land adjoining a fresh water stream or river own to the middle or thread of the stream.”³ Thus, if the lands adjacent to the *non-navigable*, freshwater river are owned by different parties, each party owns the portions of the river adjacent to their land.⁴ However, ownership of a river does not amount to complete control; control is subject to the state legislature's laws,⁵ to a public common law right of navigation,⁶ and to a public right to have migratory fish pass up or downstream in spawning season unobstructed.⁷

A state keeps in trust all *navigable* waters within its borders as public property for the use of all its citizens unless the state legislature grants otherwise.⁸ Whether a watercourse is navigable for the purposes of determining water rights under Massachusetts law depends on whether the tide

ebbs and flows in the waterway.⁹ Where a watercourse is found to be subject to tidal influences, and thus navigable for these purposes, a private owner of lands bordering on the tidal waters enjoys title to the shore and to the adjacent tidal flats all the way to the low water mark (or one hundred rods, whichever is less); the state retains title to the submerged lands and soils beneath the low water mark.¹⁰ Where a river is navigable-in-fact, but the tide does not ebb and flow, the riparian owner has title to the bed or soil under the river to the middle of the stream, subject to a public navigational easement and any other public rights protected by state law.¹¹

In Massachusetts, similar to privately-owned freshwater streams, all privately-owned tidal areas are subject to the public trust doctrine, meaning that the land lying *between* the mean high water and mean low water marks (*i.e.*, tidal flats) are subject to a “reserved easement” in the public, “whereby all members of the public retain the right to go upon the flats for purposes of fishing, fowling, and navigation.”¹² Importantly, however, the public has no right to cross, without permission, the dry land of another for the purpose of gaining access to the water or the flats in order to exercise public trust rights as doing so constitutes a trespass.¹³ Consequently, even if a waterway is open to the public, you should be careful that you are not crossing private property to access the watercourse.

Except in limited circumstances, the waters within a national park or refuge will be designated by statute as part and parcel of the park unit and thus subject to regulation by the managing federal agency.¹⁴ A managing federal agency will not have control over a body of water within national park borders only when that waterway is (i) designated as non-public land (*e.g.*, a navigable watercourse subject to state control) *and* (ii) the organic statute establishing the park excludes from the federal agency’s authority all non-public lands and waters within the park’s borders.¹⁵ In most cases, however, the federal government will have authority over waters within the boundaries of national parks and refuges.

Question 3: How do you install research cameras on federal land?

Answer 3: To install trail cameras on federal land for research, a special use permit is typically required.¹⁶ In Massachusetts, the federal government owns land through either the NPS or FWS.¹⁷ For example, NPS controls Blackstone River Valley National Historic Park,¹⁸ while FWS controls the Assabet River National Wildlife Refuge.¹⁹ Each agency has its own procedure for obtaining a special use permit.

- National Park Service: For lands owned by NPS, to conduct a scientific study via trail cameras, one can request a permit through NPS’s Research Permit and Reporting System (RPRS).²⁰
- Fish & Wildlife Service: For lands owned by FWS, one can request a permit by filling out a *Research and Monitoring Special Use Permit Application*.²¹ For instructions on how to submit this form, FWS directs people to contact the administrative office of the refuge where the research and monitoring would take place or to visit its website.²²

Question 4: How do you install research cameras on state land?

Answer 4: As with federally-controlled land, installing research cameras on state land will likely require a research permit. For example, Massachusetts’s regulations provide that a special use permit is required to “[c]onduct research which may damage, disturb or remove any [Department of Conservation and Recreation (DCR)] property or resource, real, natural, personal, cultural or historic.”²³ The use of trail cameras would likely fall into this category of research as such devices are usually installed on trees, carrying a small risk of damaging the tree and disturbing nearby wildlife. Therefore, in order to place trail cameras on DCR lands, one should apply to the agency.

These requirements for obtaining a state permit would not apply for a trail camera placed on federal land to take pictures of a state-controlled river, because there is no risk of damage or disturbance of any DCR property from the pictures. However, federal permit requirements would still apply.

- Massachusetts Department of Conservation and Recreation: Thirty (30) days prior to starting your research, you should fill out the *Research Application* provided by DCR and submit the form to the agency either by mail or online through email to nancy.putnam@state.ma.us.²⁴

Question 5: How will individual privacy rights affect the use of trail cameras in research projects?

Answer 5: The answer to this question depends on the state’s data collection, data use and storage laws. For the purposes of our answer, we will focus on the Commonwealth of Massachusetts.

Data Collection

Using a trail camera to take pictures of people for the purposes of measuring trail usage likely does not violate Massachusetts’s privacy statute. In Massachusetts, an individual has “a right against unreasonable, substantial or serious interference with his privacy.”²⁵ This right is based on the idea that a person “may hold close certain manuscripts, private letters, family photographs, or private conduct which is no business of the public and the publicizing of which is, therefore, offensive.”²⁶ The law protects information “of a highly personal or intimate nature.”²⁷

If an individual is traveling on public lands, or private lands with a public easement, they likely do not have a reasonable expectation of privacy, and a picture taken of them without identifying information likely does not rise to the level of an unreasonable invasion of privacy.²⁸ A picture of a person canoeing down a river is similarly not of a sufficiently “personal or intimate nature” to invoke one’s privacy rights. Accordingly, if a citizen scientist is permitted to be on the land, and they are taking images of people on public or publicly-accessible lands or waters where others may witness the subjects’ presence and conduct, then there is arguably no privacy violation. Citizen scientists should use common sense when determining the appropriate site for

a trail camera; for example, camping sites, may invoke a greater expectation of privacy than other areas on public lands.

Data Storage and Use

Existing Massachusetts data privacy laws governing the use of collected data likely do not apply to trail camera research projects because these laws do not cover photos of individuals absent other identifying personal information.²⁹ State regulations define “personal information” as an individual’s name plus their social security number, driver’s license number, or financial account number.³⁰ A photograph would in most cases seem to fall outside this definition, suggesting that the data management requirements that exist for collected data are inapplicable to trail camera projects.

Similarly, Massachusetts law prohibits the use of a person’s “name, portrait or picture” within the Commonwealth “for advertising purposes or for the purposes of trade” without prior written consent.³¹ This law would likely not apply to trail camera research projects as long as the images are not being used for commercial purposes.³²

One piece of proposed legislation that interested parties should be aware of is Massachusetts Senate Bill 120 (S.120), “An Act Relative to Consumer Data Privacy.” This act applies to any for-profit group with annual revenue of \$1 million or greater, and establishes privacy rights for biometric data, which could potentially include trail camera images.³³ Any entity collecting images that would fall into this category would be subject to its additional protective requirements, including providing notice to those whose data is collected, and a right to delete one’s own biometric information. In its current form, however, this bill would not apply to a non-profit group conducting research with trail cameras.

Use of Research Cameras in Practice

The NPS itself maintains wildlife cameras in some of its parks. The agency explains that these cameras are necessary “to best protect and conserve park wildlife,” and notes that “park managers and biologists require information on those species.”³⁴ The cameras can take different forms: NPS uses still or video cameras that are motion activated and cameras that record images at set intervals (*e.g.*, once every minute). NPS acknowledges that its use of these cameras might make some people uncomfortable. In the Frequently Asked Questions page for the Point Reyes seashore in California, in response to the question “Do these cameras infringe on anyone’s privacy rights?” the NPS states:

No. The location of these cameras and the images they are intended to capture all occur in areas that are considered public. The images are similar to those captured by someone taking a picture of another person, animal, or other object or scenery in a public area.³⁵

The NPS’s response further supports the argument that trail cameras that have been approved by a state or federal government and placed in areas that are considered public would not violate anyone’s privacy rights.

Indeed, citizen scientist groups, in partnership with the U.S. Fish and Wildlife Service and other federal and state agencies, have been successful in maintaining research cameras on federal lands in the past.³⁶

Other Issues to Consider

Even if installing trail cameras does not violate *legal* privacy rights, one should consider the public's reaction to being surveilled. There have been news reports of people finding unmarked cameras on federal lands and—feeling uneasy about the monitoring—removing them and contacting law enforcement.³⁷ Other organizations have noted the potential privacy concerns involved with the use of cameras: they can generate “fear and anger,” which can lead to “local opposition to camera[s]” and, because conservation efforts typically depend on local support, can impede these goals.³⁸ Additionally, one survey of global researchers using automated wildlife cameras found that three-quarters of researchers “reported local objections to cameras, either in the form of complaints or direct interference such as damage or theft.”³⁹ Any research will be impeded if people destroy or remove cameras.

To mitigate some of these privacy concerns, researchers can blur the images of people captured by the cameras, assure the public that the cameras are not used for law enforcement purposes, and emphasize that the images will not be published or shared.⁴⁰ Local involvement in the project can also help reduce public anxiety. Researchers would likely benefit from placing notices or signs near the cameras and at frequently used boat/canoe launches nearby that explain why the cameras are there and provide a phone number that concerned individuals can contact with questions. Such notice would allay concerns, although notices that identified the location of a camera could make its theft or destruction more likely.

Finally, researchers should consider adopting data management practices for how collected images will be stored, processed, and deleted in order to minimize privacy concerns while still allowing researchers to achieve their goal of monitoring usage rates.

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¹ *Massachusetts Interactive Property Map*, MASS.GOV, <https://www.mass.gov/service-details/massachusetts-interactive-property-map> (last visited Nov. 8, 2019).

² *Massachusetts Land Records*, SECRETARY OF THE COMMONWEALTH OF MASS., <https://www.sec.state.ma.us/rod/rodmlr.htm> (last visited Nov. 8, 2019).

³ § 26:7. Fresh water—Rivers, 28A Mass. Prac., Real Estate Law § 26:7 (4th ed.); *see also Tappan v. Boston Water-Power Co.*, 157 Mass. 24, 30 (1892).

⁴ *See Tappan*, 157 Mass. at 30 (“[E]ach proprietor owns an equal share of the bed of the stream in proportion to his line on the margin and in front of or adjacent to his upland.”).

⁵ *See, e.g., Commonwealth v. Hilton*, 174 Mass. 29, 32-33 (1899).

⁶ *See, e.g., Weston v. Sampson*, 62 Mass. 347, 349 (1851).

⁷ *See, e.g., Commissioners on Inland Fisheries v. Holyoke Water Power Co.*, 104 Mass. 446, 450 (1870), *aff’d sub nom. Holyoke Co. v. Lyman*, 82 U.S. 500 (1872).

⁸ 43 U.S.C. § 1311.

⁹ *Commonwealth v. Chapin*, 22 Mass. 199, 203 (1827).

¹⁰ *Opinion of the Justices to Senate*, 383 Mass. 895, 902-03 (1981).

¹¹ *Brosnan v. Gage*, 240 Mass. 113, 117-18 (1921) (finding that the river above a dam, although navigable-in-fact, was non-navigable for determining water rights as there was no ebbing and flowing of tides in the river).

¹² *Sheftel v. Lebel*, 44 Mass. App. Ct. 175, 182 (1998).

¹³ *See id.* at 183.

¹⁴ *See, e.g.*, 54 U.S.C. § 100751(b) (Authority of National Park Service to regulate boating and other activities on or relating to water within park system units).

¹⁵ For example, in *Sturgeon v. Frost*, the U.S. Supreme Court determined that the National Park Service’s hovercraft prohibition did not apply to the Nation River, which was partially located in a federal preservation area, as (i) the river was not a “public land” within the meaning of the Alaska National Interest Lands Conservation Act (ANILCA) as it was a navigable water where Alaska, not the United States, had title to the lands beneath the river, and (ii) ANILCA exempted nonpublic lands, including waters, located within national park boundaries in Alaska from the National Park Service’s ordinary regulatory authority. *Sturgeon v. Frost*, 139 S.Ct. 1066 (2019).

¹⁶ *See* 36 C.F.R. § 1.6 (National Park Service’s permitting authority for otherwise restricted or prohibited activities); 50 C.F.R. § 35.11 (Fish & Wildlife Service’s special use permit requirement for scientific research); *see also, e.g., Permits*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/refuge/Assabet_River/visit/permits.html (last visited Nov. 8, 2019) (“Any type of access or use that is not currently allowed on the refuge requires a special use permit.”).

¹⁷ Carol Hardy Vincent et al., Cong. Research Serv., R42346, *Federal Land Ownership: Overview and Data 9* (2017), <https://fas.org/sgp/crs/misc/R42346.pdf>. The U.S. Department of Defense (DOD) also owns land in Massachusetts, but we assume that no trail cameras will be installed on DOD lands.

¹⁸ *See Blackstone River Valley*, NAT’L PARK SERV., <https://www.nps.gov/blrv/> (last visited Nov. 8, 2019).

¹⁹ *Assabet River*, U.S. FISH & WILDLIFE SERV., https://www.fws.gov/refuge/assabet_river/ (last visited Nov. 8, 2019).

²⁰ *Request a Permit*, NAT’L PARK SERV., <https://www.nps.gov/nature/request-a-permit.htm> (last visited Nov. 11, 2019).

²¹ U.S. Fish & Wildlife Serv., *Research and Monitoring Special Use Permit Application* (2017), <https://www.fws.gov/forms/3-1383-R.pdf>.

²² *Permits, National Wildlife Refuge System*, U.S. FISH & WILDLIFE SERV., <https://www.fws.gov/refuges/visitors/permits.html> (last visited Nov. 11, 2019).

²³ 302 Mass. Code Regs. 12.04(28).

²⁴ *Apply for a research permit*, MASS.GOV, <https://www.mass.gov/how-to/apply-for-a-research-permit> (last visited Nov. 12, 2019).

²⁵ Mass. Gen. Laws ch. 214, § 1B.

²⁶ *Cefalu v. Globe Newspaper Co.*, 391 N.E.2d 935, 939 (Mass. Ct. App. 1979).

²⁷ *Wagner v. City of Holyoke*, 241 F.Supp.2d 78, 100 (D. Mass. 2003).

²⁸ A person does not have a privacy interest in information that he openly makes available to the public. *See Dasey v. Anderson*, 304 F.3d 148, 154 (1st Cir. 2002) (holding that there was no privacy interest in smoking marijuana with others present); *French v. United Parcel Serv., Inc.*, 2 F.Supp.2d 128, 130-31 (D. Mass. 1998) (holding no privacy interest in public drinking).

²⁹ 201 Mass. Code Regs. 17.03.

³⁰ *Id.* 17.02.

³¹ Mass. Gen. Laws ch. 214, § 3A.

³² *See, e.g., McMann v. Doe*, 460 F. Supp. 2d 259, 268 (D. Mass. 2006) (holding that defendant's posting of plaintiff's photograph on webpage did not attempt to employ the photo for commercial value, and thus plaintiff's privacy rights were not violated).

³³ The proposed bill states that “[b]iometric information includes, but is not limited to, imagery of the iris, retina, fingerprint, face, hand, palm, vein patterns, and voice recordings, from which an identifier template, such as a faceprint, a minutiae template, or a voiceprint, can be extracted, and keystroke patterns or rhythms, gait patterns or rhythms, and sleep, health, or exercise data that contain identifying information.” An Act Relative to Consumer Data Privacy, S.120, 191st Sess. (Mass. 2019) (Proposed).

³⁴ *Wildlife Monitoring and Wildlife Viewing Camera Systems: Frequently Asked Questions, Point Reyes*, NAT'L PARK SERV., https://www.nps.gov/pore/learn/nature/wildlife_monitoring.htm#CP_JUMP_369654 (last visited Nov. 12, 2019).

³⁵ *Do these cameras infringe on anyone's privacy rights?*, *Wildlife Monitoring and Wildlife Viewing Camera Systems: Frequently Asked Questions, Point Reyes*, NAT'L PARK SERV., https://www.nps.gov/pore/learn/nature/wildlife_monitoring.htm#CP_JUMP_369659 (last visited Nov. 12, 2019).

³⁶ *See, e.g., Wildlife Monitoring*, CONSERVATION NORTHWEST, <https://www.conservacionnw.org/our-work/wildlife/wildlife-monitoring/> (last visited Nov. 12, 2019) (monitoring remote habitats from North Cascades National Park to the Pasayten Wilderness to the Gifford Pinchot National Forest).

³⁷ Tony Bartelme, *Francis Marion has Hidden Cameras*, THE POST & COURIER (Mar. 15, 2010), https://www.postandcourier.com/news/francis-marion-has-hidden-cameras/article_5222a547-efa9-51b9-bf07-52b2a51c334c.html.

³⁸ Rogelio Luque-Lora, Bill Adams, and Chris Sandbrook, *Camera Traps Designed for Animals are Now Invading Human Privacy*, THE CONVERSATION (Nov. 19, 2018), <https://theconversation.com/camera-traps-designed-for-animals-are-now-invading-human-privacy-105327>.

³⁹ *See id.*

⁴⁰ *See id.*