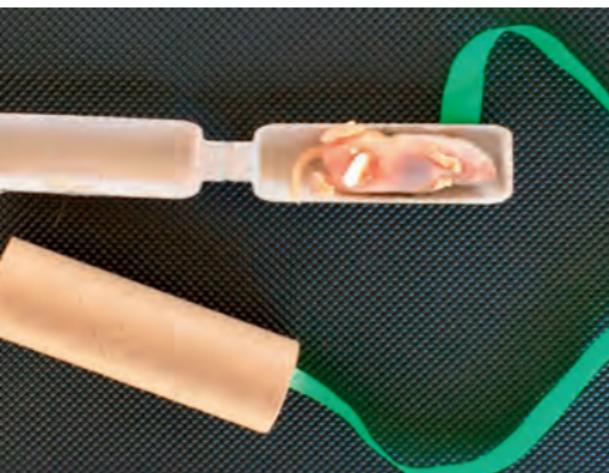




United States Department of Agriculture

Technology Transfer: Partnering With Wildlife Services



Animal and Plant Health Inspection Service

Wildlife Services (WS), part of the U.S. Department of Agriculture, often partners with universities, private companies, and others to develop new products that help prevent or reduce wildlife damage. Today's wildlife-related challenges need innovative solutions. With our partners, we find answers that are biologically sound, practical, and effective—and best protect the health and value of U.S. agriculture and natural resources.

We offer many different ways to form these types of partnerships. In all, we strive to put WS research into real-world use and move new technologies to the marketplace.



The NWRC headquarters office is located in Fort Collins, CO. The 43-acre campus includes several outdoor animal research facilities.



About Our Research

The research arm of WS—the National Wildlife Research Center (NWRC)—is based in Fort Collins, CO, and at several field stations throughout the United States. We employ more than 160 scientists, technicians, and support staff with expertise in a wide range of fields: animal behavior, chemical registration, chemistry, ecology, economics, epidemiology, immunology, information transfer, public health, reproductive physiology, toxicology, veterinary medicine, wildlife biology, wildlife disease, and wildlife genetics. Here, we study ways to resolve human-wildlife conflicts related to agriculture, human health and safety, property, invasive species, and threatened and endangered species.

Partnerships are vital to the Center's work. NWRC shares information on new technologies in many traditional ways—publishing research findings, producing technical notes and factsheets, presenting at scientific meetings, and hosting demonstrations and workshops. In addition, intellectual property partnerships are how we transfer developed technologies to private businesses and end-users.





A WS biologist and NWRC researcher attach a radio transmitter to a snowy owl in order to learn more about the bird's movement and habitat use around airports.

How We Work

The Federal Technology Transfer Act (FTTA), in place since 1986, changed the way Federal laboratories do business. The FTTA allows labs and industry to more freely exchange business information and practices, form partnerships, and encourage patenting technologies. Today, new legal vehicles such as the Cooperative Research and Development Agreement (CRADA) and expanded patenting and licensing opportunities give us even more options for technology transfer and innovation.

WS forms partnerships through a variety of legal agreements and by protecting, patenting, and licensing inventions. We also cooperate with USDA's Forest Service (USFS), Office of Knowledge Management and Communications to facilitate and coordinate this work. With all of these agreements, we enter into partnerships only when the objective relates to the WS mission.

NWRC's animal holding facilities allow researchers to test the effectiveness of repellents for use on agricultural crops.



Intellectual Property and Technology Transfer Agreements

Cooperative Research and Development Agreement

The CRADA is a joint research effort—both parties bring their expertise to the partnership, and both conduct some portion of the work. It includes at least one non-Federal partner that has some degree of research capacity and commits funds and/or in-kind resources to a collaborative effort with a Federal entity (for example, a WS scientist). A CRADA partner may be an individual company, a group of companies, an association, a university, or any combination of these. It may also include another Federal agency, but only if there is an additional non-Federal partner.

A CRADA is appropriate for a commercial firm seeking to further develop and commercialize a WS invention, merge WS technology with its own, or jointly discover and develop new technologies. This may include a new product, process, or service. The cooperator may give funds to WS for work done under the agreement or may contribute personnel, equipment, or materials. WS offers research staff, laboratory facilities, materials, equipment, supplies, technical and intellectual knowledge and advice, and other in-kind contributions.

NWRC and its partners in Australia are leading the way to develop and register a toxicant bait for feral swine.



Benefits

CRADAs offer many benefits:

- assurance of confidentiality
- access to Federal laboratory resources and expertise
- rights to intellectual property and help with patenting
- the right to negotiate exclusive licenses on patented inventions

How To Initiate a CRADA

- Search the NWRC Web page at **www.aphis.usda.gov/wildlifedamage/nwrc** for information about our research programs.
- Contact WS scientists responsible for research projects of interest.
- Develop a brief proposal with the WS scientist and technology transfer program manager.
- Obtain proper review and clearance for the proposal from your firm.
- Work with the WS scientist and technology transfer program manager to develop a Statement of Work for the agreement.
- Obtain signed approval from your firm for the CRADA and its proposed research plan.



NWRC expertise includes chemistry, veterinary medicine, epidemiology, genetics, physiology, and wildlife biology.

Non-Disclosure Agreement (NDA)

An NDA, sometimes referred to as a Confidentiality Agreement, performs several functions. It permits parties to exchange confidential information and data in order to determine whether they would like to enter into a research collaboration or license agreement. The signatories of an NDA agree not to disclose technical information received from the other party for a specified period of time.

Material Transfer Agreement (MTA)

An MTA governs the transfer of materials between two organizations. This agreement does *not* transfer ownership. The materials are only lent to the receiving scientist, and the MTA sets forth the conditions of the loan—it defines the rights of the provider and recipient for the materials and any derivatives, as well as how the materials may be used. An MTA includes conditions of confidentiality.

NWRC facilities include a biosafety level 3 (BSL-3) suite for studying various wildlife disease agents.



Material Transfer Research Agreement (MTRA)

MTRAs allow for the transfer of materials and the engagement in joint research between the provider and the recipient of the materials. An MTRA does not convey rights to negotiate exclusive licenses to any intellectual property arising from the research. Rather, it is intended as an early-stage opportunity for proof of concept that may lead to more extensive research, which would be conducted under a CRADA.

Other Types of Collaborative Agreements

Under a **Cooperative Service Agreement**, the cooperator provides funds to WS for research or other product development projects. The agreement may be on a one-time or continuing basis; it can allow for cost recovery in advance (trust fund) or be reimbursable. Confidentiality provisions apply to the cooperator's proprietary material. Information developed by WS can only be withheld from public disclosure for a reasonable period of time to protect intellectual property rights until a patent application is filed.

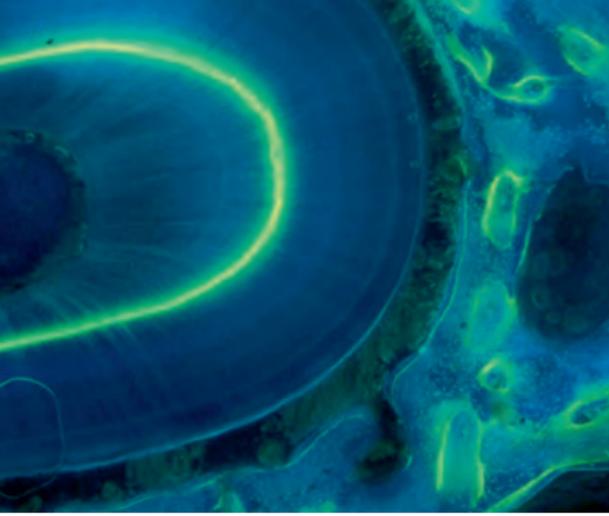


Overabundant wild horses damage natural areas. GonaCon-Equine is an immunocontraceptive vaccine NWRC researchers developed to help reduce fertility in wild horses.

Cooperative Agreements are for more general purposes. WS enters into these agreements when we see the need for substantial involvement with a partner on an activity. The main purpose is to create public support or awareness rather than acquire services for WS' direct benefit or use. Under this type of agreement, WS provides money, property, services, or anything of value to the cooperating partner to achieve the stated goal. Unless mandated by legislation or program regulations, these agreements do not require the partner to share costs or match funding.

An **Interagency Agreement** is an acquisition arrangement between at least two Federal agencies. The purpose is for one agency (the requesting agency) to obtain needed goods and services from another agency (the performing agency). WS uses interagency agreements to transfer funds between APHIS and other Federal agencies when needed to support specific work related to its mission. The Economy Act of 1932 (31 U.S.C. 1535–1537) applies to these agreements.

A **Memorandum of Understanding** (MOU) is a written plan between two or more parties to carry out a project of mutual interest. Each party to the MOU handles its own activities and



Tetracycline (green in photo) is used as a marker to determine the effectiveness of wildlife vaccines.

uses its own resources, including its own funds. There is no transfer of funds between or among the parties. WS uses MOUs to define and formally document the nature, terms, and conditions of an agreement with other Federal agencies or non-Federal entities.

Patent Program

WS shares many of its discoveries with the public right away via publications or community outreach. Yet, some WS inventions need major financial investments and resources from the private sector before the public can benefit from a new, improved product or service. To offer an incentive for such investments, WS may patent new inventions and transfer technologies to the public through patent licenses. Inventions can be solely or jointly owned. If the Government owns part or all of the invention, WS will prepare and prosecute the patent application.

Patent Licenses

USDA patented technologies are available for licensing with the intent to commercialize. WS partners with USFS to oversee the licensing process for federally owned inventions, in line with Federal law (37 CFR 404). Licenses to market

WS has been instrumental in developing and testing new oral rabies vaccines.



in the United States are available to qualified businesses and individuals on an exclusive, partially exclusive, or non-exclusive basis. In some cases, foreign patent rights are available. Licenses are royalty-bearing and include provisions for license execution and annual maintenance fees and patent cost reimbursements.

Businesses or individuals who want to commercialize a WS invention must submit a patent license application. We use this information to decide whether the applicant has a development and marketing strategy that will lead to successful commercialization. The WS-USFS licensing office considers the applicant's estimate of potential market size and share, profits, and financial and resource investments needed to commercialize the product. This information, combined with the scope of the licensed patent and license rights, also informs negotiations on license fees and royalty rates. All business information shared during licensing negotiations is kept confidential.



NWRC's rodenticide research focuses on improving the efficacy of existing products and investigating new and safer alternative compounds.

Successful Commercial Partnerships

Below are just a few examples of successful partnerships between WS and private industry. Through such partnerships, we help deliver innovative tools and technologies to wildlife managers and others.

GonaCon-Equine

WS licensed GonaCon-Equine—our immunocontraceptive vaccine for wild and feral horses—to Spay FIRST!, a public benefit company. This license allows the company to produce and sell the vaccine in the United States and internationally. Spay FIRST! is working to develop a line of wildlife contraceptive products.

Live Snake Trap

WS helped launch a new product line for private partner Tomahawk Live Trap. This trap manufacturing company licensed a patented live snake trap from WS. The trap uses two trip pans to capture large, heavy snakes such as the invasive Burmese python in Florida. It is the first trap to require that two trip pans be depressed at the same time to close the trap door. The pans are spaced far apart to reduce the

WS worked with a private engineering firm to develop an automated aerial bait delivery system to help control invasive brown treesnakes on Guam.



chance that nontarget animals, such as smaller native snakes and raccoons, will trigger the trap. It is now available for purchase on the company's Web site.

Bait Delivery System

WS and Applied Design Corporation received a joint patent from the U.S. Patent and Trademark Office in 2017. This patent is for a mechanized system that produces and aeri ally delivers bait to control invasive brown treesnakes on Guam. The technology is easily adapted for delivery of other payloads and could help with rodent control and eradication efforts, oral vaccine delivery, and other uses.

Bird Repellent Strategy

WS patented a strategy based on ultraviolet characteristics of natural compounds for reducing bird damage to agricultural crops. The patent was licensed to Arkion Life Sciences LLC. Arkion and WS are pursuing four other patent applications for use in the United States and abroad. Also, Arkion is developing a product line that will help protect crops, buildings, and other structures from bird-caused damage.

More Information

You can learn more about WS research and partnering opportunities from the resources below.

The **NWRC Web site (www.aphis.usda.gov/wildlifedamage/nwrc)** is the electronic gateway to USDA Animal and Plant Health Inspection Service (APHIS) research about wildlife damage management. NWRC studies issues of national and international scope that affect management of wild mammals, birds, reptiles, and amphibians.

The **APHIS Web site (www.aphis.usda.gov)** describes APHIS' national programs. APHIS is a multifaceted agency with a broad mission area that includes, among other things, protecting and promoting U.S. agricultural health, regulating genetically engineered organisms, administering the Animal Welfare Act, and managing wildlife damage. These efforts support the overall USDA mission to protect and promote food, agriculture, natural resources, and related issues.

The WS Technology Transfer Program Manager (970-266-6000) can offer more information on intellectual property agreements, technologies available for licensing, partnering opportunities, and technology transfer success stories.

Contact Us

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www.aphis.usda.gov/wildlifedamage/nwrc

APHIS Mission

To protect the health and value of U.S. agricultural, natural, and other resources

WS Mission

The Wildlife Services program provides Federal leadership in managing problems caused by wildlife.

USDA is an equal opportunity provider, employer, and lender.

Mention of trade names or commercial products in this report is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U.S. Department of Agriculture over others not mentioned.

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Wildlife Services

Protecting People | Protecting Agriculture | Protecting Wildlife

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