NebGuide

Nebraska Extension

Research-Based Information That You Can Use

G1893
September 2025

Pesticides and the Endangered Species Protection Program

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This NebGuide discusses the Endangered Species Protection Program and its role in the use of pesticides. The U.S. Environmental Protection Agency's Endangered Species Protection Program ensures pesticide registrations comply with the Endangered Species Act while avoiding unnecessary use restrictions. Legally enforceable pesticide product labeling is the main risk-management tool used for endangered species protection. In addition, National Pollutant Discharge Elimination System permitting may be required for certain pesticide applications to, over, or near waters of the state.

Background

The U.S. Congress and president enacted the Endangered Species Act (ESA) in 1973 to protect animal and plant species in danger of extinction and their habitats. The overall goal of the ESA is to help populations of species recover so they are no longer endangered or threatened. Every species, whether it is a plant, bird, mammal, fish, or insect, has a role in the ecosystem. The loss of any species reduces diversity, affecting the well-being of all the other species, including humans.

Registered pesticides are important for agriculture, as well as for maintaining vegetation in transportation and utility rights-of-way, controlling invasive species including noxious weeds, and controlling disease vectors (e.g., mosquitoes and ticks). However, some pesticides may harm certain endangered or threatened species. The U.S. Environmental Protection Agency (EPA) is responsible for registering pesticides for use in the U.S. The Endangered Species Protection Program (ESPP) is one of the ways that EPA meets the requirements of the ESA. A primary goal of the ESPP is to manage the use of federally registered pesticides to avoid jeopardizing protected species while also avoiding any unnecessary limitations or restrictions on use.

Conservation Status

The ESA and Nebraska's state-level companion law, the Nebraska Nongame and Endangered Species Conservation Act (NESCA), provide legal protection to:

- **Endangered species** of plants and animals, defined as "any species which is in danger of extinction throughout all or a significant portion of its range."
- **Threatened species** of plants and animals, defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

- **Critical habitat** of endangered and threatened species, defined as "the specific areas" within a species' range "on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection."

The federal government and Nebraska's state government each maintain their own lists of endangered and threatened species. Nebraska's list includes all the species on the federal list whose ranges encompass parts of Nebraska. In addition, Nebraska lists species that are at risk in Nebraska but not in immediate danger in other parts of their ranges in the U.S. For example, the small white lady's slipper (*Cypripedium candidum*) and the southern flying squirrel (*Glaucomys volans*) are listed as threatened species by the state of Nebraska but are not listed by the federal government as of 2025. Such state-only listings aim to prevent the further decline of species and reduce the likelihood that they will need to be listed by the federal government in the future. Species listed only at the state level do not receive federal ESA protections. For the purposes of this publication, the term 'listed species' refers to species listed by the federal government as endangered or threatened.

Pesticide Registration

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the EPA is responsible for:

- approving ('registering') new pesticide active ingredients and products that contain them;
- periodically reviewing the registrations of existing pesticide products; and
- approving pesticide product label language as a condition for a product's initial or continued registration.

During the registration process, EPA reviews information and data submitted by a company wishing to register a pesticide product to ensure that the proposed uses of the product will not pose unreasonable risks to humans or the environment. During the registration review process, EPA uses updated data and the latest scientific assessment processes to ensure that continued use of an existing pesticide product does not pose unreasonable risks. EPA's overall goal is to balance the risks and benefits of allowing pesticides on the market, which it accomplishes by working with companies to create and approve risk-mitigating product label language.

Section 7 of the ESA requires federal agencies to ensure that any actions they take, authorize, or fund are "not likely to jeopardize the continued existence of" listed species or "result in the destruction or adverse modification" of their critical habitat. Since registering a pesticide is an action taken by EPA, the Agency must ensure that doing so conforms to this ESA requirement.

Assessing Pesticide Risks to Listed Species

EPA's process for assessing and mitigating a pesticide's risk to federally listed endangered and threatened species requires it to consider whether an individual of a species is likely to be harmed by labeled uses of a product. If so, it must formally consult with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service ('the Services') for additional study. The Services assess whether labeled uses of a product are expected to jeopardize the continued existence of listed species. A 'jeopardy' determination tells EPA that either: 1) some or all uses of the product are unfit for registration; or 2) further use restrictions are needed on the product's labeling to avoid jeopardizing listed species.

In recent years, EPA has begun proactively requiring the addition of use restrictions to product labeling after making its initial determinations but before completing formal consultation with the Services. This approach allows earlier implementation of protective measures and somewhat streamlines the consultation process. Depending on the outcome of the consultation process, EPA may then require additional product labeling amendments to address any remaining 'jeopardy' determinations.

Pesticide Labeling

All pesticides pose risks. Pesticide product labels and labeling address these risks by establishing legally enforceable safety measures and use directions that the pesticide user must follow. When EPA determines that a pesticide product poses an unreasonable risk to humans or the environment, it can require the product's label or labeling to carry additional use restrictions to reduce the risk.

A pesticide product's 'labeling' includes its label (the printed material accompanying or physically attached to the pesticide container or packaging) ***and*** any other material to which the label refers. This other material can include websites. Pesticide users are legally responsible for following ***all*** use requirements contained in a product's labeling.

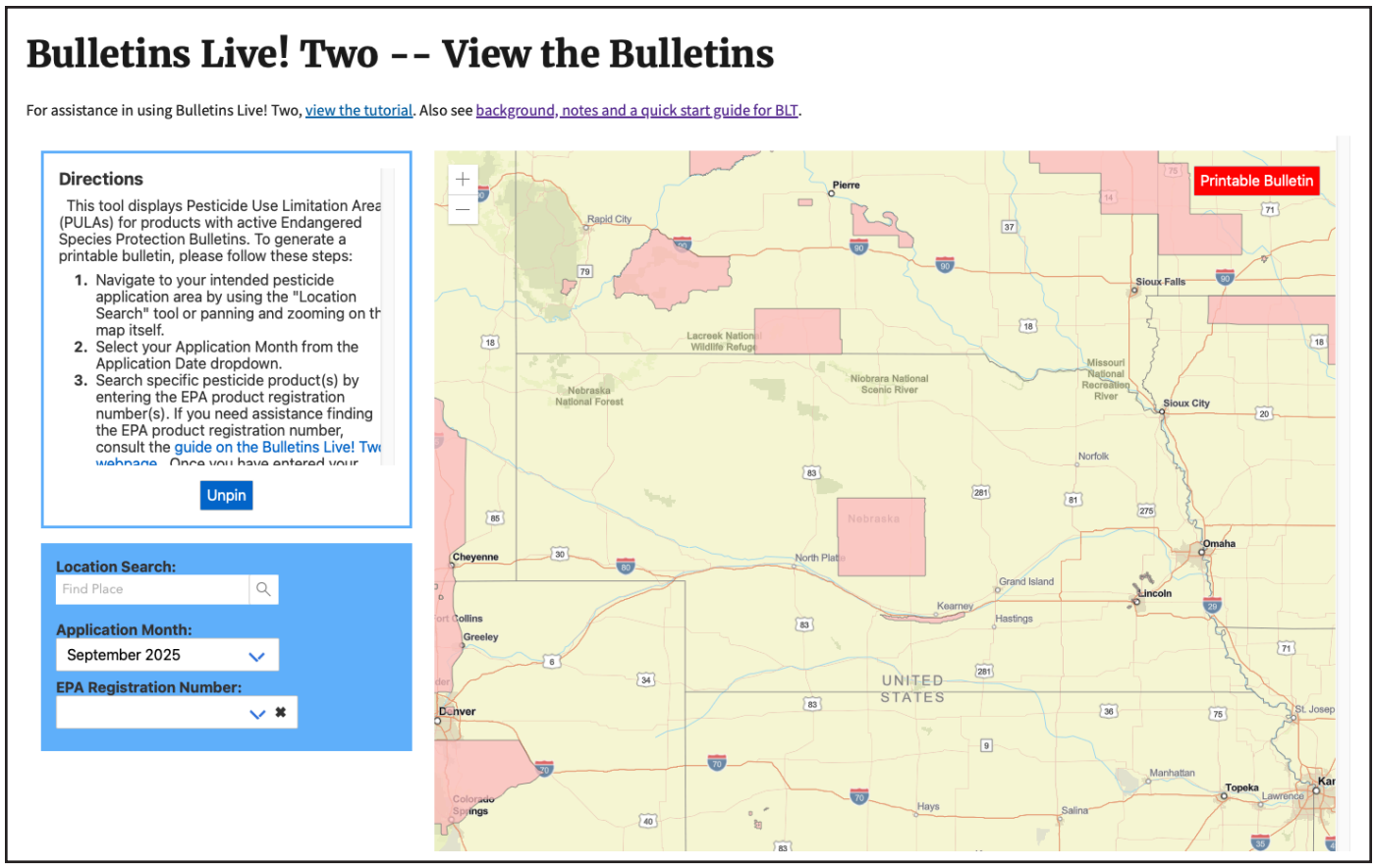

Figure 1. Screenshot of U.S. EPA's *Bulletins Live! Two* webpage. Accessed: September 9, 2025.

Product labeling is key to protecting listed species from pesticides. To meet its goal of protecting these species and their critical habitat without imposing undue restrictions on pesticide users, EPA localizes its ESA-related pesticide labeling restrictions as much as possible. Labeling restrictions that protect listed species (and other nontarget organisms) take three main forms:

1. Endangered Species Protection Bulletins ('bulletins'),
2. runoff/soil erosion mitigation requirements, and
3. spray drift mitigation requirements.

Endangered Species Protection Bulletins establish Pesticide Use Limitation Areas (PULAs) where special restrictions apply to the use of a given pesticide product. Each PULA is tailored to a specific pesticide product (or products), a specific geographical area, and a specific time period. Pesticide labels may direct users to check for bulletins by visiting EPA's online mapping tool, *Bulletins Live! Two (BLT)* (Figure 1). The *BLT* webpage includes step-by-step instructions. If a bulletin exists for a product at the time and place you intend to apply it, the bulletin becomes part of the product labeling and you must follow all restrictions it contains. When directed to do so by a product label, you must visit *BLT* to check for bulletins within six months prior to the day of your planned pesticide application. Help with *BLT* is available by calling 1-844-447-3813 or emailing espp@epa.gov.

Pesticides in runoff are a pathway for nontarget exposure and a focus of EPA's ecological protection efforts. Runoff is water from precipitation or irrigation that moves across the soil surface instead of infiltrating into the soil. As it moves, runoff can erode soil and carry suspended soil particles with it. Similarly, pesticides can become dissolved or suspended in runoff. As a result, runoff that moves off a pesticide application site has the potential to contaminate surface water bodies or injure nontarget plants and animals.

To reduce the risk of pesticide runoff harming nontarget species or their habitat, EPA has created an online '*Mitigation Menu*'. As new pesticide products become registered and existing products undergo registration review, EPA will require many of their labels to reference this *Mitigation Menu*, making it part of those products' labeling.

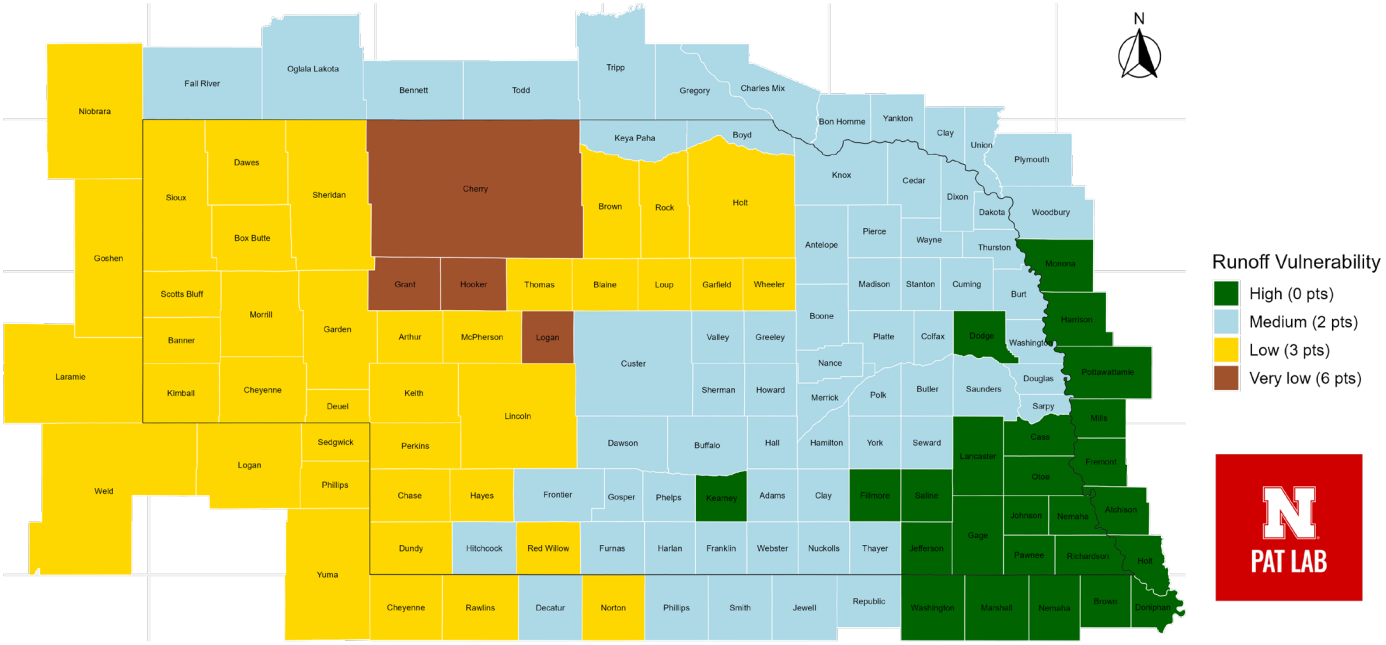

Figure 2. County-Based Mitigation Relief based on Pesticide Runoff Vulnerability across Nebraska and a one-county-wide buffer surrounding the state, included to account for potential operations by pesticide applicator(s). Counties are categorized by the number of mitigation relief points as defined by the U.S. EPA. Figure credit: Dr. Milos Zaric, University of Nebraska–Lincoln. Source (accessed: July 21, 2025): https://www.epa.gov/system/files/documents/2024-10/county-mitigation-relief-points-runoff-vulnerability.pdf

The *Mitigation Menu* for runoff is based on a point system and is designed to provide flexibility for pesticide users. Each pesticide product label that references the *Mitigation Menu* will specify the number of 'mitigation points' the user must achieve to legally apply the product on a given site, up to a maximum of nine points. Users can accumulate mitigation points in a variety of ways, including mitigation relief options and actual mitigation measures.

EPA has assigned a baseline number of relief points (between zero and six) to each county in the continental U.S. based on each county's runoff vulnerability (Figure 2). A county that is highly vulnerable to runoff receives zero relief points (green on the map), while a county with very low runoff vulnerability receives six points (brown on the map). As an example, if a person plans to apply a pesticide that requires four mitigation points, but the application will take place in a county with three baseline relief points, the applicator would need to gain only one more point to satisfy the label requirement. Additional mitigation relief options are available, such as for fields with low slope or predominantly sandy soils, or for participating in a conservation program.

If, after taking all mitigation relief options into account, the user is still short of the label-required point total, they will need to implement one or more mitigation measures to reach the necessary total. There are four types of mitigation options listed on the *Mitigation Menu* from which applicators can choose:

1. application parameters,
2. in-field mitigation measures,
3. field-adjacent mitigation measures, and
4. systems that capture runoff and discharge.

Some fields may already have one or more of these mitigation measures implemented on or next to them.

Spray drift mitigation is another focus of EPA's nontarget species protection efforts. Spray drift occurs when pesticide spray droplets do not deposit on the desired application target and instead remain airborne and move with air currents. Air currents can deposit these droplets off the application site altogether, potentially contaminating surface water bodies or injuring nontarget plants and animals.

To reduce the risk that pesticide spray drift poses to nontarget species and their habitat, EPA may require pesticide labels to include mandatory spray drift mitigations. Labels may require:

- the use of certain application parameters (e.g., minimum droplet size, maximum boom height);

- the presence of certain weather conditions (e.g., wind speed restrictions); and/or
- the inclusion of buffer areas on or next to the application site.

Product labels that require buffer areas ('ecological spray drift buffers') may allow the user to reduce the width of the buffer they need by adopting 'buffer reduction options'. These options differ depending on whether the application will be made using ground-boom, aerial, or air-blast equipment. For applications using ground-boom equipment, buffer reduction options include lowering the boom height, increasing the spray droplet size, and, for herbicide applications, using a drift-reducing adjuvant in the spray mixture. Each option reduces the buffer width by a specific percentage. These options are housed on the same EPA *Mitigation Menu* website that houses the runoff mitigation information.

Bottom Line for Pesticide Users

EPA's approach to reducing ecological impacts and meeting its ESA obligations remains fluid, and aspects of it could change over time as the Agency collects feedback from stakeholders. Its multipronged mitigation approach is relatively new, and it will take a number of years for all registered pesticide products to cycle through registration review and become subject to this new approach. However, applicators should become familiar with how to use the *Mitigation Menu* and *Bulletins Live! Two*, and check them regularly. If you use pesticides, the bottom line is this: Follow all directions and requirements contained in the labeling of the product you are using.

Get to Know Nebraska's Protected Species

Pesticide users must take precautions to protect Nebraska's state-listed species as well. Become familiar with these species and their habitats, and, when managing pests in or near their range, use nonchemical pest control methods when possible. Photos and habitat descriptions for state-listed species are available on the Nebraska Game and Parks Commission website. If you must use pesticides, follow all labeling directions, including mitigation measures for drift and/or runoff, and take steps to prevent off-target pesticide movement.

Endangered and threatened plants. Herbicide applications, drift, and overspray may weaken or kill fragile populations of plants. In addition, be careful when applying insecticides or other pesticides that could affect pollinators such as bees/wasps, butterflies/moths, flies, and beetles. Pollinators are important to the survival of many plants. For example, the western prairie fringed orchid relies on the sphinx moth for pollination and seed production. Loss of these native moths threatens the western prairie fringed orchid as well. As of 2025, Nebraska had three federally listed plant species and four additional state-listed plant species. **Federal endangered:** blowout penstemon (*Penstemon haydenii*). **Federal threatened:** Ute ladies'-tresses (*Spiranthes diluvialis*), western prairie fringed orchid (*Platanthera praeclara*). **Nebraska endangered:** Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*), saltwort (*Salicornia rubra*). **Nebraska threatened:** American ginseng (*Panax quinquefolius*), small white lady's slipper (*Cypripedium candidum*).

Endangered and threatened insects. Pesticide applications in areas occupied by listed insects could result in the loss of local populations. Contact with an insecticide, either directly or through drift or runoff, may affect these insects. Direct mortality and lower reproduction rates are possible. Predatory insects, such as the Salt Creek tiger beetle, may also be vulnerable to secondary poisoning: eating other insects that have been exposed to insecticides. Finally, herbicide applications can destroy habitat that provides food and shelter for listed insects. As of 2025, Nebraska had two federally listed insect species. **Federal endangered:** American burying beetle (*Nicrophorus americanus*), Salt Creek tiger beetle (*Cicindela nevadica lincolniana*).

Endangered and threatened fish. Pesticide overspray, drift, and runoff may enter streams, ponds, or rivers and harm fish populations. Fish are particularly susceptible to pesticides during their larval development. In addition, most small native fish depend on aquatic insects for survival. Applications of insecticides could affect the fish populations indirectly due to the loss of insects as a food source. Reduce the risk of pesticides entering surface water by establishing adequate buffer strips and using sound agricultural practices to reduce erosion and runoff. As of 2025, Nebraska had two federally listed fish species and five additional state-listed fish species. **Federal endangered:** pallid sturgeon (*Scaphirhynchus albus*), Topeka shiner (*Notropis topeka*). **Nebraska endangered:** blacknose shiner (*Notropis heterolepis*), sturgeon chub (*Macrhybopsis gelida*). **Nebraska threatened:** finescale dace (*Chrosomus neogaeus*), lake sturgeon (*Acipenser fulvescens*), northern redbelly dace (*Chrosomus eos*).

Endangered and threatened birds. Pesticide applications may reduce the populations of invertebrates that birds use for food or the vegetation birds use for habitat. Pesticides in stormwater runoff may enter streams, ponds, or rivers, harming or killing fish and invertebrates such as aquatic insects, crustaceans, and mollusks upon which

some shorebirds, including the piping plover, feed. Fish and invertebrates can accumulate toxins in their bodies; a bird that eats them may experience a buildup of toxins as well. As of 2025, Nebraska had five federally listed bird species and three additional state-listed bird species. **Federal endangered:** Eskimo curlew (*Numenius borealis*), whooping crane (*Grus americana*). **Federal threatened:** eastern black rail (*Laterallus jamaicensis jamaicensis*), piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus rufa*). **Nebraska endangered:** interior least tern (*Sternula antillarum athalassos*). **Nebraska threatened:** mountain plover (*Charadrius montanus*), thick-billed longspur (*Rhynchophanes mccownii*).

Endangered and threatened mammals. Pesticides may harm mammals if they access improperly secured rodenticide baits or if predators or scavengers eat poisoned animals and carcasses. Pesticides in stormwater runoff could enter streams, ponds, or rivers and harm or kill fish and invertebrates such as aquatic insects, crustaceans, and mollusks upon which some mammals feed. Fish and invertebrates can accumulate toxins in their bodies; a mammal that eats them may experience a buildup of toxins as well. In addition, pesticides in streams, ponds, or rivers may degrade water quality. As of 2025, Nebraska had three federally listed mammal species and two additional state-listed mammal species. **Federal endangered:** black-footed ferret (*Mustela nigripes*), gray wolf (*Canis lupus*), northern long-eared bat (*Myotis septentrionalis*). **Nebraska endangered:** swift fox (*Vulpes velox*). **Nebraska threatened:** southern flying squirrel (*Glaucomys volans*).

Other endangered and threatened species. As of 2025, Nebraska had one federally listed mussel species and two state-listed reptile species. **Federal endangered:** scaleshell mussel (*Leptodea leptodon*). **Nebraska threatened:** timber rattlesnake (*Crotalus horridus*), western massasauga (*Sistrurus tergeminus*).

National Pollutant Discharge Elimination System Permits

When making pesticide applications to, over, or near waters of the state for nonagricultural uses (rights-of-way, mosquito control, algae control, etc.), you may need a National Pollutant Discharge Elimination System (NPDES) permit. For most applications, you are covered by the Pesticide General Permit (NEP110000), which imposes certain obligations on the pesticide user: Depending on the circumstances, you may be required to submit a Notice of Intent, prepare a Pesticide Use Management Plan, follow specific Best Management Practices, and consult with the Nebraska Game and Parks Commission (NGPC).

NGPC maintains a document, *Endangered and Threatened Species Standard Procedures for General NPDES Permit Number NEP110000 for Pesticides*, that outlines standard procedures for specific pesticide use cases in areas where state or federal endangered/threatened species or their critical habitat reside. If these procedures apply to your intended application, you must follow them. If these procedures do not apply to your intended application project, you must consult with the NGPC's Environmental Review Team before proceeding. Information on submitting a project to NGPC for review and consultation is included in the *Standard Procedures* document. Allow at least 30 days for this process. For help determining which steps you need to take in relation to NPDES permitting, contact the Nebraska Department of Water, Energy, and Environment. For help identifying endangered/threatened species, their critical habitat, potential impacts on them from your planned pesticide application, and how to prevent these impacts, contact NGPC. Additional guidance documents are listed in the 'Resources' section below.

Summary

Endangered and threatened species require special attention due to their vulnerability. Always read pesticide labels carefully. If directed to do so by the label, consult EPA's *Bulletins Live! Two* and/or the *Mitigation Menu* for runoff and drift prevention. Follow all associated restrictions, including use-limitation areas, buffer areas, weather conditions, runoff mitigations, and application parameters. When applying nonagricultural pesticides to, over, or near waters of the state, an NPDES permit and associated requirements may be needed.

Resources

Threatened and Endangered Species | Nebraska Game and Parks Commission (bit.ly/NGPCrareSP2)

Endangered Species Protection | Nebraska Department of Agriculture (bit.ly/NDAPPesp)

Bulletins Live! Two | U.S. EPA (bit.ly/ESbulletins)

Mitigation Menu | U.S. EPA (bit.ly/EPAmitigationmenu)

Endangered and Threatened Species Standard Procedures for General NPDES Permit Number NEP110000 for Pesticides | Nebraska Game and Parks Commission (bit.ly/NGPCcert)

Questions and Answers about Nebraska's General National Pollutant Discharge Elimination System (NPDES) Permit for Pesticides | Nebraska Department of Agriculture (bit.ly/NDAnpdesQA2)

NPDES Pesticides General Permit with Guidance | Nebraska Department of Water, Energy, and Environment (bit.ly/NDWEEnpdes)

Contact the following agencies for additional information.

Nebraska Department of Agriculture (NDA)

Phone: (402) 471-2351.

Email: agr.pesticide@nebraska.gov

U.S. Environmental Protection Agency (EPA) – Region 7 Office

Phone: (913) 551-7003 or 1 (800) 223-0425

Email: r7actionline@epa.gov

Nebraska Game and Parks Commission (NGPC)

Phone: (402) 471-5423

Email: ngpc.envreview@nebraska.gov

U.S. Fish & Wildlife Service (USFWS) – Nebraska Ecological Services Field Office

Phone: (308) 382-6468

Email: nebraskaes@fws.gov

Nebraska Department of Water, Energy, and Environment (NDWEE)

Phone: (402) 471-2186

Email: DWEE.NPDESandStatePermitsSection@nebraska.gov

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