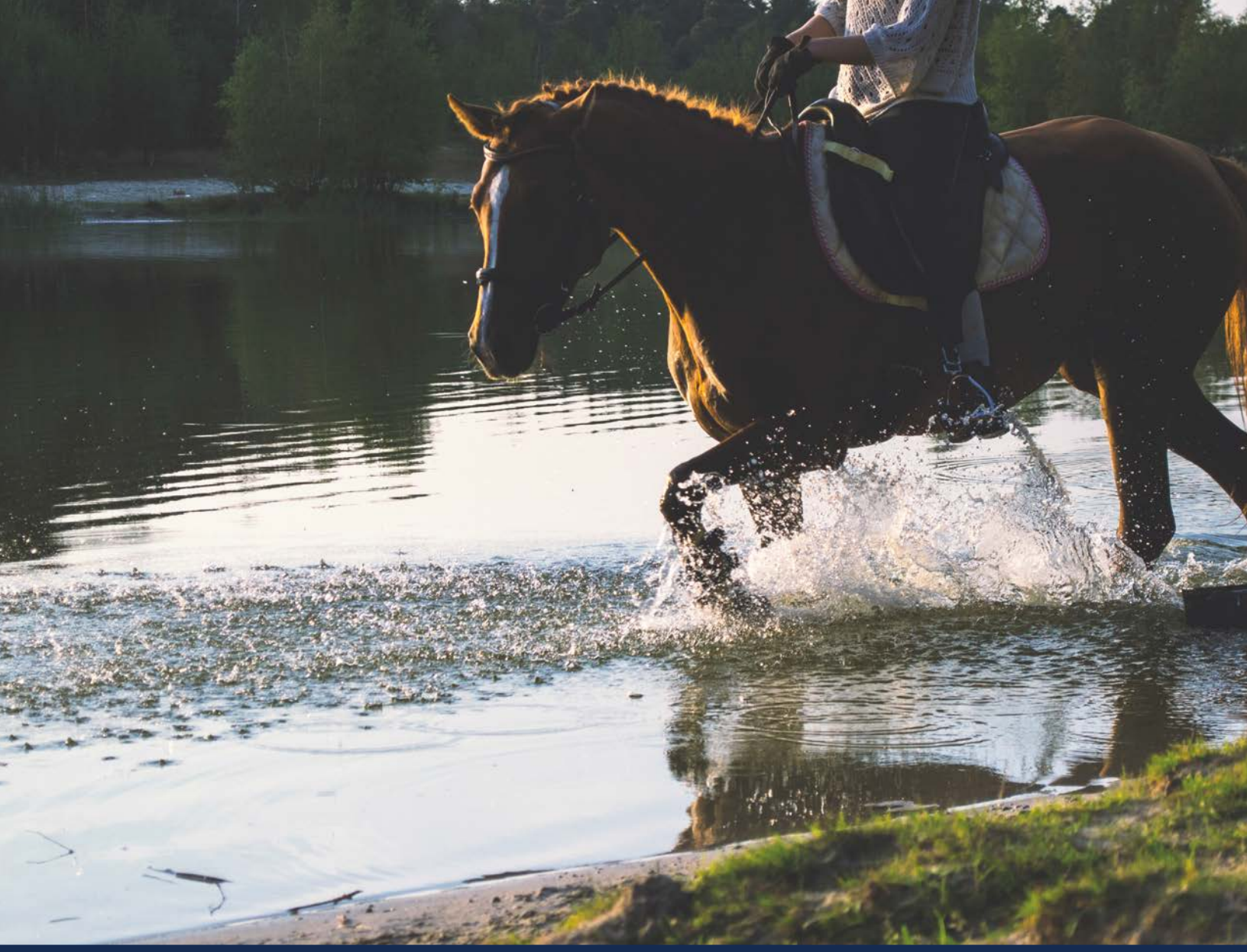


FLOODING & EQUINE OWNERS

Preparing, Responding, and Recovering

UC DAVIS VETERINARY MEDICINE
Center for Equine Health

UC DAVIS WIFSS
Western Institute for Food Safety & Security

FLOODING & EQUINE OW

Preparing, Responding, and Recovering

Flooding is the most common and costly disaster experienced by U.S. citizens. Flooding can be dangerous not only for horses but for ranchers and their employees as well. Six inches of moving water can topple an adult, and as little as 12 inches can sweep a vehicle off the road. Additionally, flooding can impact equine facilities with structural damage and loss of feed, leading to severe economic losses. This pamphlet describes actions equine owners can take to prepare, respond, and recover from flooding events.

PREPARE

- **KNOW YOUR FLOOD PLAIN**
  Use the property's history and FEMA mapping (on page 7) to determine if your barns or pastures will likely be affected by the flooding. Flood maps can also be used to determine which evacuation routes are likely to remain open.

- **CREATE YOUR OWN FARM DISASTER PLAN**
  The plan should include details for either evacuating your horses or implementing "shelter-in-place." You should plan two possible evacuation routes. If you do not have enough trailers to quickly transport all of your animals to an evacuation site, contact neighbors, local haulers, farmers, producers, or other transportation providers to establish a network of available and reliable resources that can provide transportation in the event of a disaster. Designate a willing neighbor to tend to your animals if you are not at home when a disaster occurs. This person should have keys to your home, truck, and trailer, be familiar with your animals, know your evacuation procedures, and know where your evacuation supplies are kept.



- **ASSEMBLE EVACUATION AND FIRST AID KITS**
  (see page 6)

- **PRACTICE YOUR FARM DISASTER PLAN**
  Practice loading into trailers to ensure horses load easily by different people. Keep vehicles well maintained with adequate fuel to allow for the evacuation.

- **DETERMINE EVACUATION DESTINATION**
  Evacuation destinations frequently used are county fairgrounds, local auction barns, and nearby ranches located at a higher elevation. Your county's Office of Emergency Management or local livestock organizations may be used to coordinate transportation and sheltering resources.

- **DETERMINE POTENTIAL SHELTER-IN-PLACE LOCATIONS**
  If evacuation is not an option, sheltering-in-place may be the best choice. Most horses will fare better in a significant flood if they are allowed access to higher ground. Determine where the highest ground is located and how the horses will have access to such locations.

- **ENSURE ACCESS TO EMERGENCY INFORMATION**
  Make provisions to monitor flood and weather conditions that don't depend on grid electricity.

NERS



Accurate news sources may include your county's Office of Emergency Management websites and NOAA radio broadcasts. Have important emergency numbers easily accessible: local veterinarian, law enforcement, and Emergency Operations Center.

- **IMPROVE YOUR FACILITY'S FLOOD RESISTANCE**
  Improve storm drainage to limit inundation of critical areas. Promptly remove dead trees to minimize debris in fields. When possible store feed and other commodities at higher locations. Elevate furnace, water heater, and electrical panels if they are susceptible to flooding.

- **SECURE CRITICAL RECORDS**
  Have copies of important legal, identification, and medical records in a waterproof and fireproof box that is readily accessible during an evacuation, and keep digital copies stored on a secure cloud-based server. Include photographs and video of you with your horses and other insured property for proof of ownership and property insurance claims.

- **EMPLOY VACCINATION**
  Keep your horses current on vaccinations including Tetanus, Eastern and Western Equine Encephalitis, and West Nile Virus.

RESPOND

The key to a successful response is to stay tuned in to the weather conditions at hand. Listen for evacuation orders and follow your Farm Disaster Plan.

- **MONITOR THE FLOOD CONDITIONS**
  Monitor watercourses, dams, and public and private levees which could threaten your facility. Orders of mandatory evacuation, emergency dam releases, or reports of levee overtopping, boils, or failure should trigger implementation of your Farm Disaster Plan.

- **PROTECT CONSUMABLES**
  Protect animal drugs, fertilizers, pesticides, seeds, and feed, including hay and grain. This can mean repositioning to locations or buildings with higher elevation or creating improvised barriers.

- **RELOCATE HEAVY EQUIPMENT**
  Valuable mobile equipment such as tractors, farm trucks, and all-terrain vehicles should be relocated to higher ground.



- **EVACUATE**
  Listen to local radio stations and implement your Farm Disaster Plan as soon as evacuation orders are issued or you deem necessary.

- **SHUT OFF UTILITIES**
  If significant flooding is expected, turn off utilities, turn off electrical breakers, and shut off propane at the tank.

- **SHELTER-IN-PLACE**
  "When in doubt, turn them out."
  - Make sure to mark horses physically with a phone number or ID that will survive water.
  - If you have a leather halter, leave it on. Otherwise, halters can be dangerous and should be removed.
  - Have a high hay storage option on site, as well as water collected ahead of time in garbage cans.
  - Horses trapped in deep water but able to stand can be fed via flotation raft for a few days. It is not ideal, but it can save their lives until the water recedes.
  - Most horses will do fine in the rain. Trembling horses will need additional shelter or waterproof blanketing. A wet blanket is worse than no blanket at all. Blankets can become entangled and should be removed from horses that are let loose.

- **DO NOT ATTEMPT RESCUE**
  Technical rescue of submerged large animals is one of the most dangerous procedures performed by first responders. It should never be attempted without an adequately trained and equipped swift water rescue team, assisted by a knowledgeable veterinarian or livestock handler.

It is never recommended that you ride out an evacuation order; however, if you are trapped or forced to stay behind, do not risk your life or the lives of others trying to save a horse. Involve a DVM and first responders who are trained to help.

RECOVER

It is important to remember that there may be dangerous hazards below standing water. Horses that were left to shelter-in-place may be tangled in wire or seriously injured. Flood water can be laden with toxins and debris. Upstream sewer and septic systems may be overwhelmed. Call professionals for help.

- **PERFORM INITIAL SURVEY**
  If animals were sheltered-in-place, ensure that all animals are accounted for and are eating. Do not attempt to move a horse that does not want to move; call your veterinarian. Take photographs and video footage of damage and losses for insurance claims submission.

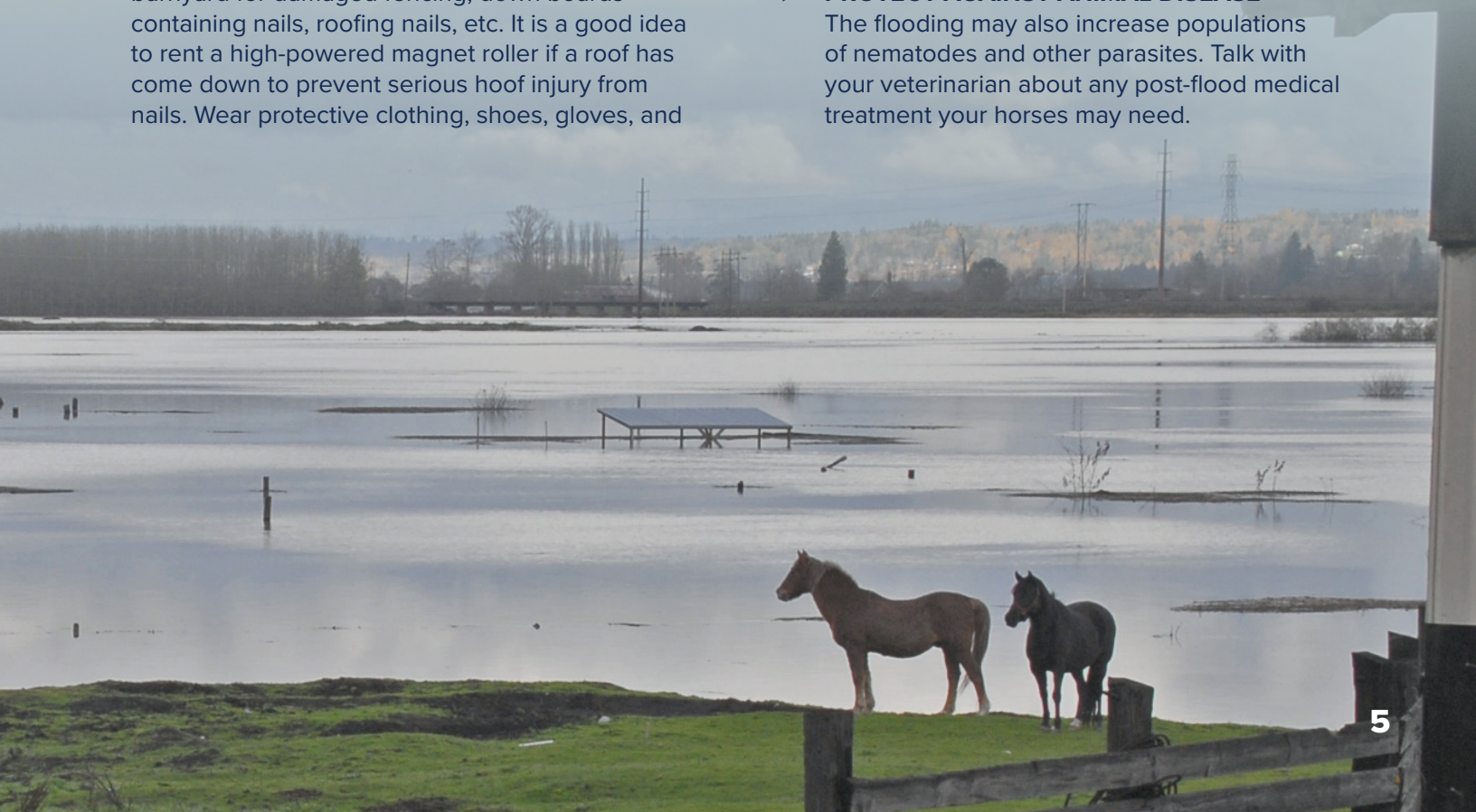
- **CARE OF HORSES**
  Triage horses and call DVM if horses have wounds, significant lameness or limb swelling, ocular injury, nasal discharge or cough, are off feed, lethargic, or have a temperature higher than 101.5 degrees F. Bathe horses in mild detergent (avoid contact with eyes) to decontaminate and inspect for wounds. Thoroughly pick feet, inspecting for nails and other trauma.

- **INSPECT AND CLEANUP BARNYARD**
  Check for down power lines and call the electrical company if present. Do not approach. Inspect barnyard for damaged fencing, down boards containing nails, roofing nails, etc. It is a good idea to rent a high-powered magnet roller if a roof has come down to prevent serious hoof injury from nails. Wear protective clothing, shoes, gloves, and eye gear. Once it is safe to do so, drag pastures and enclosures to spread out soil and debris and to facilitate drying. Pressure wash stalls with a detergent solution or 1:10 chlorine bleach and allow 15 minutes contact time. Consider safe use of fans and dehumidifiers to aerate barns and control mold growth. Have barns inspected for structural integrity, if there is any question of roof or wall stability.

- **SURVEY FEED DAMAGE**
  Check all sources of hay and feed for spoilage and contamination. Dispose of any feed that was damaged by the water or is moldy.

- **WATER AVAILABILITY AND QUALITY**
  Inspect water sources to ensure that horses can consume roughly 10 gallons per day. It's a good idea to have water tested prior to human and horse consumption.

- **PROTECT AGAINST ANIMAL DISEASE**
  The flooding may also increase populations of nematodes and other parasites. Talk with your veterinarian about any post-flood medical treatment your horses may need.



EMERGENCY KIT

Evacuation Kit

- ☐ **Fencing:** Roll of temporary fencing
- ☐ **Toolbox:** Reciprocating saw, hammer, nails, flashlight, batteries, wire cutters, bolt cutters
- ☐ **Feed:** 7 to 14 days of hay or grain, stored up high with tarp coverage
- ☐ **Water:** Adequate plastic trash cans with lids for clean water storage prior to flood event
- ☐ **Vehicles:** Fueled truck and operating trailer with working lights and sound floorboards
- ☐ **Power Source:** Generator and fuel, if water source is electricity dependent
- ☐ **Records:** Waterproof bag with proof of ownership such as proof of purchase; list of animals with species, breed, age, sex, color, and distinguishing characteristics; recent photographs of you with your horses; medical records including current negative Coggins test, vaccine records, current medical conditions and medicines (include drug name(s), dosage, and frequency of dosing), veterinarian names and contact numbers
- ☐ **Animal identification**: Be sure your horses have two forms of identification – permanent and a tag. Having identification on your animals may help reunite you with your animals in the event you are separated. Identification should provide your name, home address, phone number(s), and the phone number of someone out-of-state with whom you will be in contact during or soon after the disaster or evacuation. If possible, include your veterinarian's name, location, and phone number. Examples of some forms of identification are listed below:

  Permanent Identification
  - — Microchip
  - — Tattoo
  - — Brand
  - — Clipper-shaved information in the animal's coat

  Temporary Identification Options
  - — Halter tag
  - — Neck collar
  - — Leg band
  - — Mane clip
  - — Luggage tag braided to mane or tail
  - — Livestock marking crayon, non-toxic, non-water-soluble spray paint, or non-water-soluble markers to write on animal's side

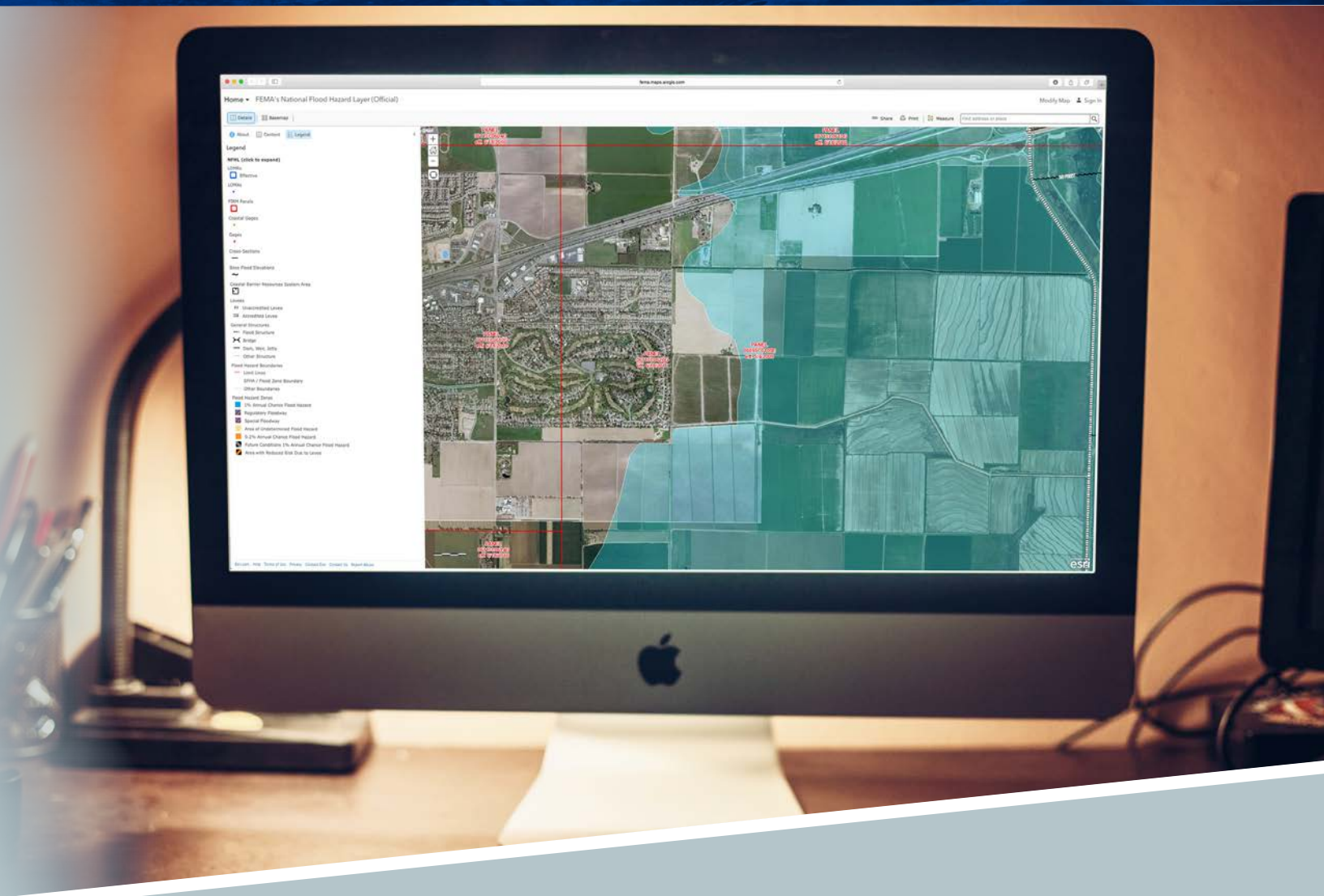
- ☐ **Release letters:** Signed letter releasing neighbor from responsibility if an animal is injured and a signed letter authorizing veterinary treatment

First Aid Kit

- ☐ Antibiotic cream such as Neosporin
- ☐ Light wrap material such as Telfa, cling gauze, Vet Wrap, or cotton roll
- ☐ Triple antibiotic eye ointment
- ☐ Tube of Banamine paste from your DVM (check expiration)
- ☐ Tube of Bute paste from DVM (check expiration)
- ☐ Wound spray such as AluShield
- ☐ Stethoscope
- ☐ Digital thermometer
- ☐ Mild soap for decontamination and post flood bath
- ☐ Headlight and batteries



Image by Jean van der Sluijs via Flickr



FLOOD PLAIN

How do you know if you are living in a flood plain?

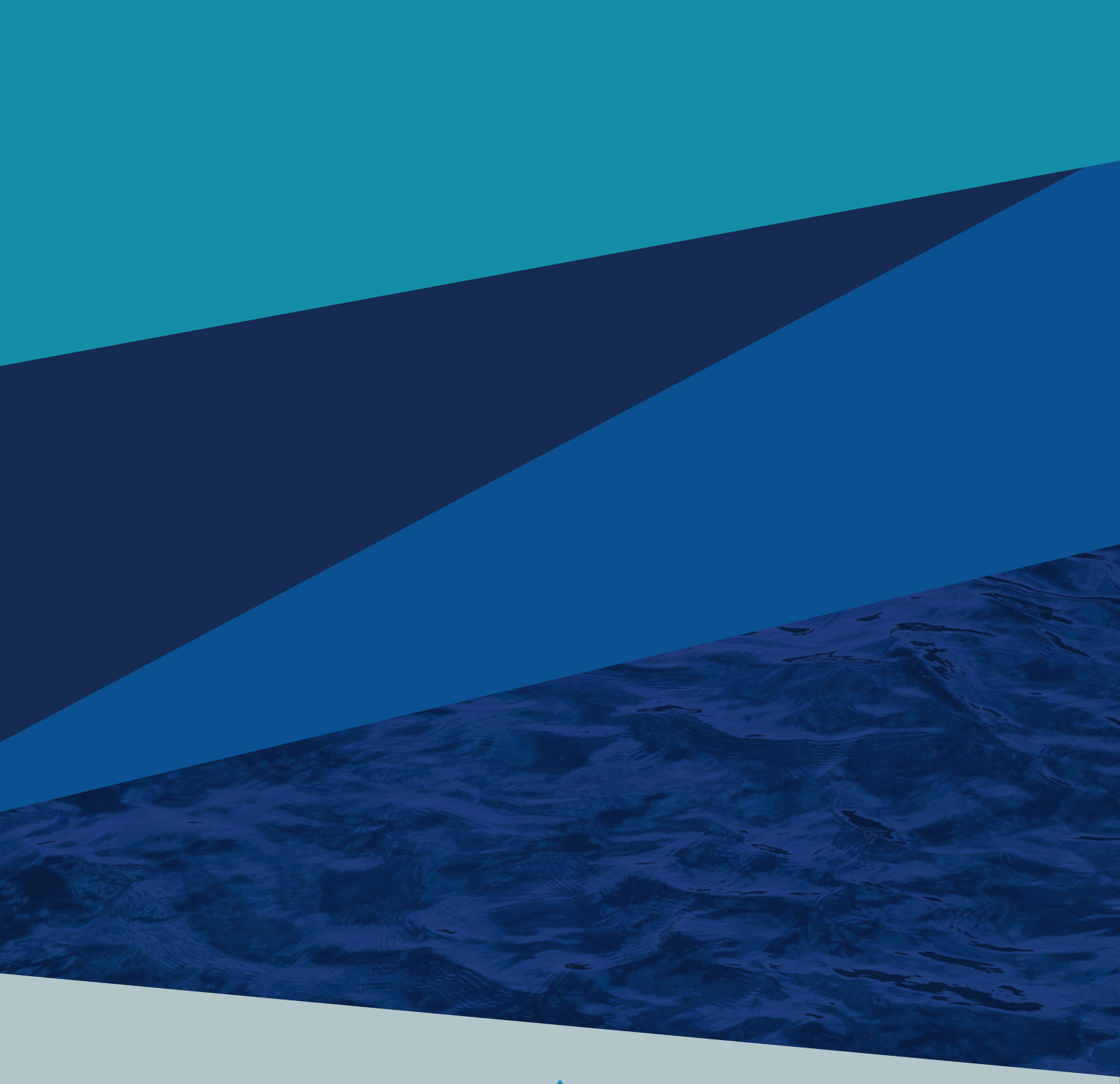
One quick, easy resource to help determine what your flood risk is the FEMA Flood Map Service Center at *www.msc.fema.gov/portal/search*.

Simply enter your address and click “search”.

The portal gives you several options for viewing, but the easiest option is the “Interactive Map” display.

The example above shows a typical result, with the blue shading indicating an area having a 1% (1-in-100-chance) of flooding every year. This area is sometimes referred to (inaccurately) as a “100-year” flood plain and is equivalent to a 26% chance of experiencing flooding during a 30-year mortgage period.

The FEMA flood map does not tell you how severe the flooding might be; for example, whether the water will be one foot or six feet deep, or what the speed of the current of the floodwaters will be.



FOR MORE INFORMATION, CONTACT US

Center for Equine Health
530.752.6433
www.vetmed.ucdavis.edu/ceh
www.facebook.com/ucdavis.ceh

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