

Horses, Mud, Mosquitoes,
Manure, and you.



Outline

1. Watersheds
2. Moderate Mud
3. Minimizing Mosquitoes
4. Managing Manure

Watershed Concept

- A watershed = a landscape that drains to a common waterbody
- Except for the headwaters, we are all downstream of someone and usually upstream of someone else
- What we do on our properties affects those downstream



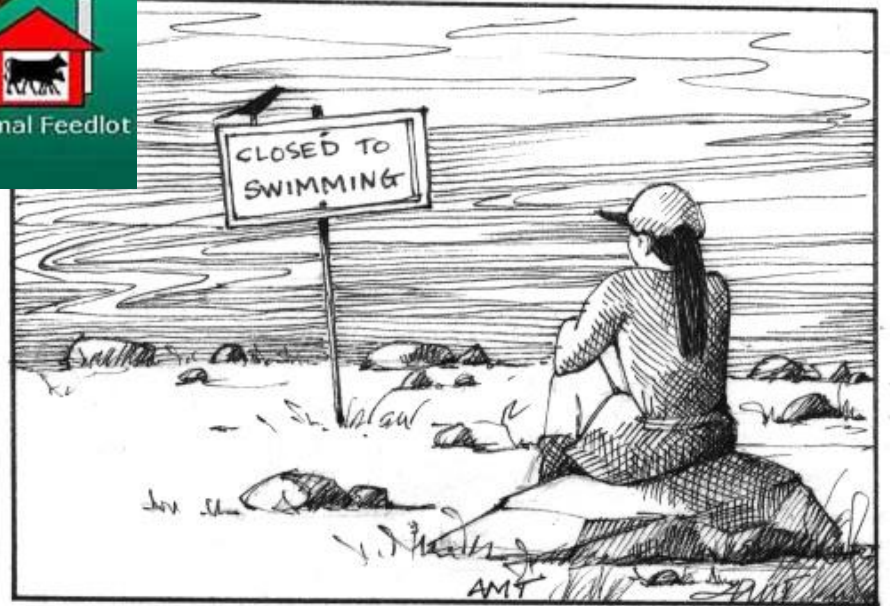
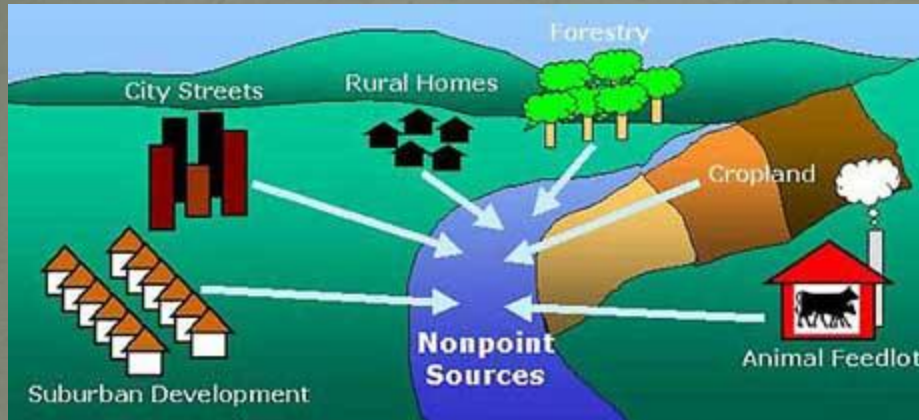
Manure as a fertilizer

- Avg. horse makes 30 lbs of feces + 20 lbs of urine daily
- The manure amounts to 12-15 yards per year
- Application rates suggest composted manure:
 - Garden 1 lb/sqft composted and dug in (53 yards/acre)
 - Pasture $\frac{1}{4}$ " thick during growing season (33 yards/acre)
= 2 horses/acre of pasture

Point Source Pollution



Non-point source pollution



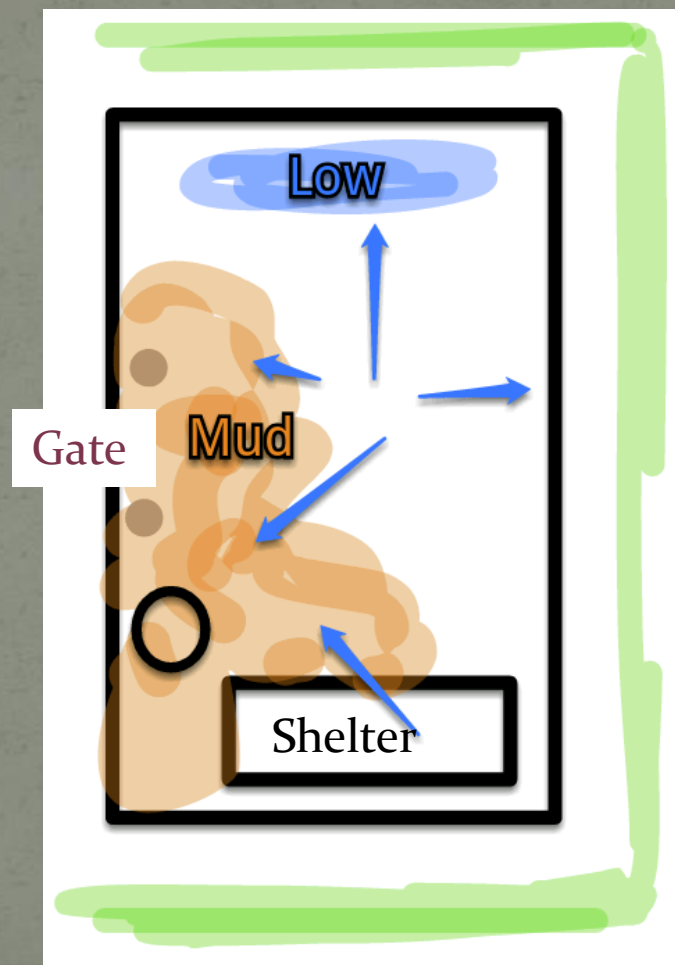
Water Pollutants

- Sediment – erosion and bank failure
- Nutrients – animal wastes, air pollution
- Bacteria, viruses and parasites – fecal matter
- Temperature – lack of vegetation
- Chemicals – herbicides, pesticides, excess fertilizer
- Trash -

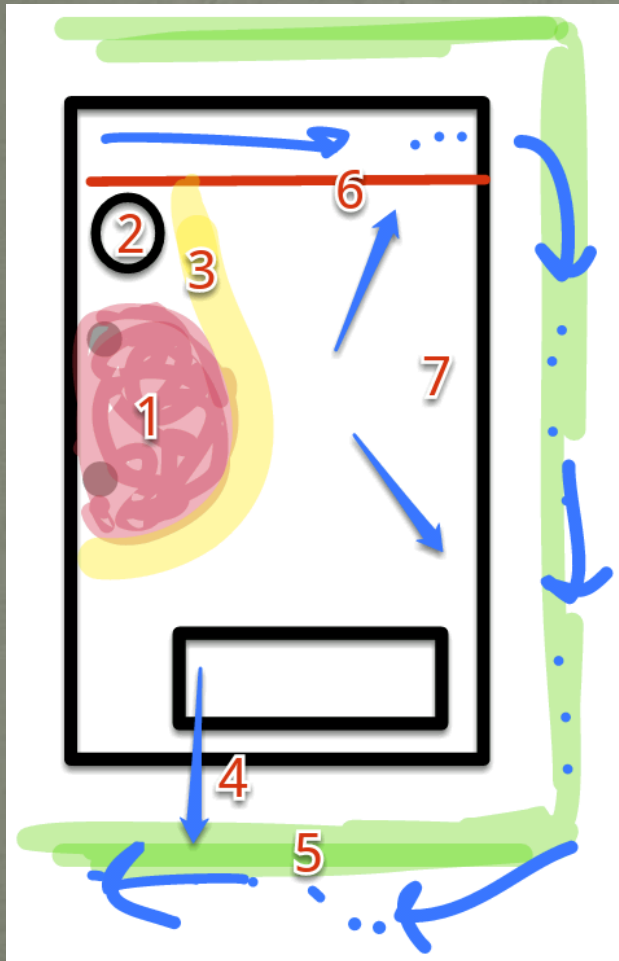
Mud and why we hate it...



Let's look at the problem...



Solutions...

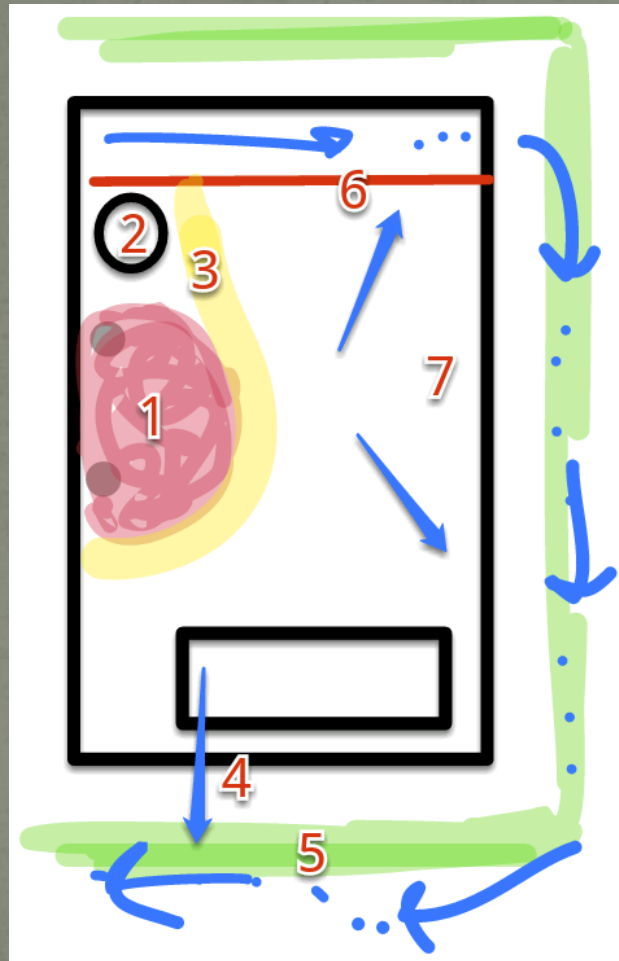


1. Use crushed rock with filter fabric under it at gates and other high use areas to build up the area and provide dry footing.



Crushed or angular rock provides better footing than pea gravel or drain rock.

Solutions...



2. Move water troughs to high ground.



Keep your water troughs clean! Don't let them be a breeding ground for mosquitoes.

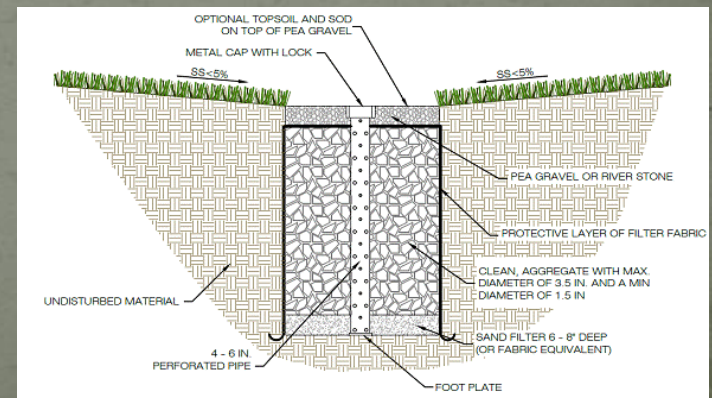
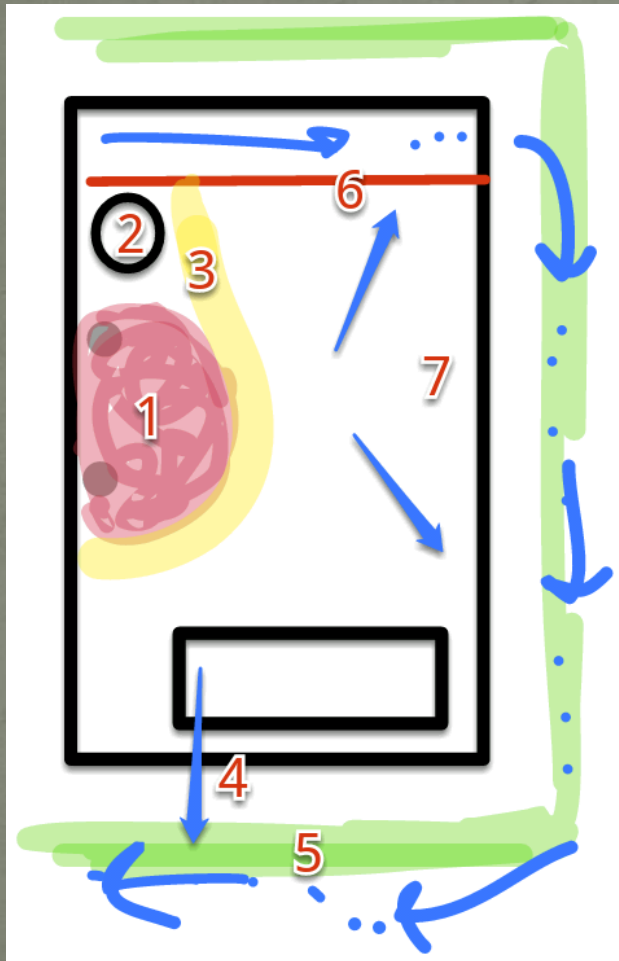


Remember, if you would drink the water then it is clean enough.



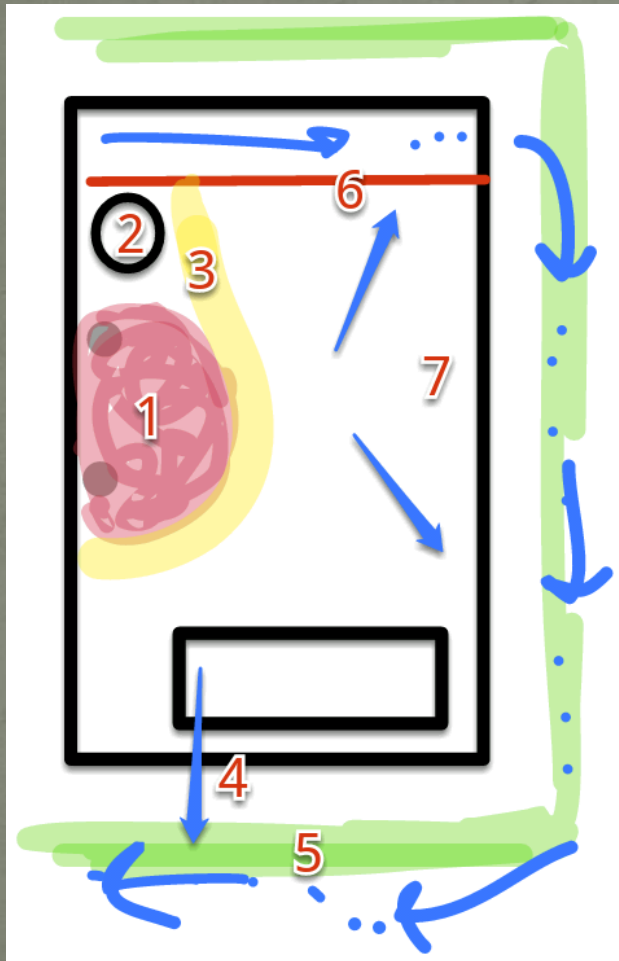
Solutions...

3. Make a place for water to go. French drains or simple infiltration wells work well. Put them in low spots and next to water features such as water troughs and wash racks.



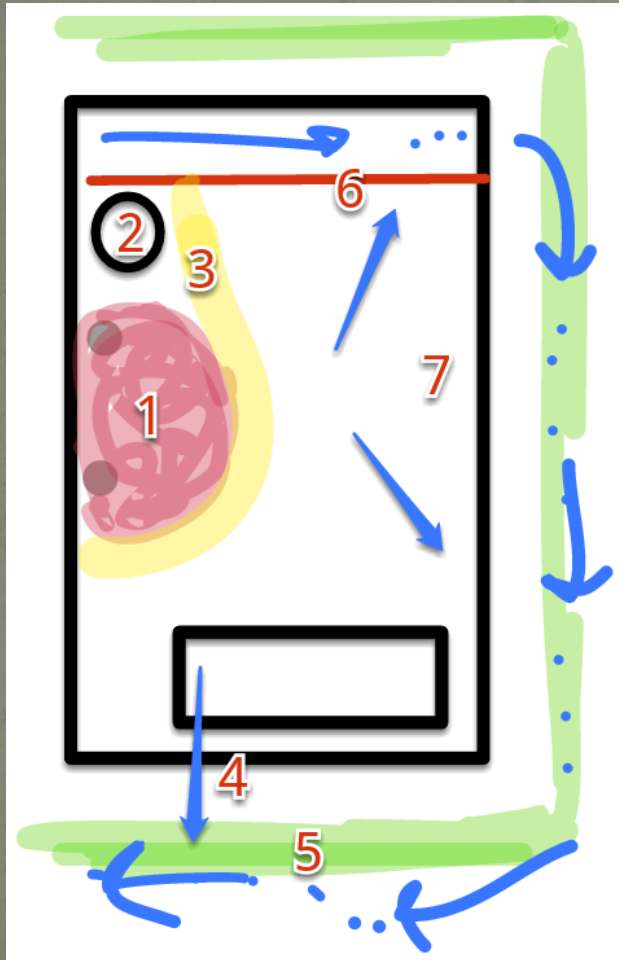
Solutions...

4. Direct water from rooftops out of your pastures and paddocks. Use roof gutters, splash blocks, or pipes.



Solutions...

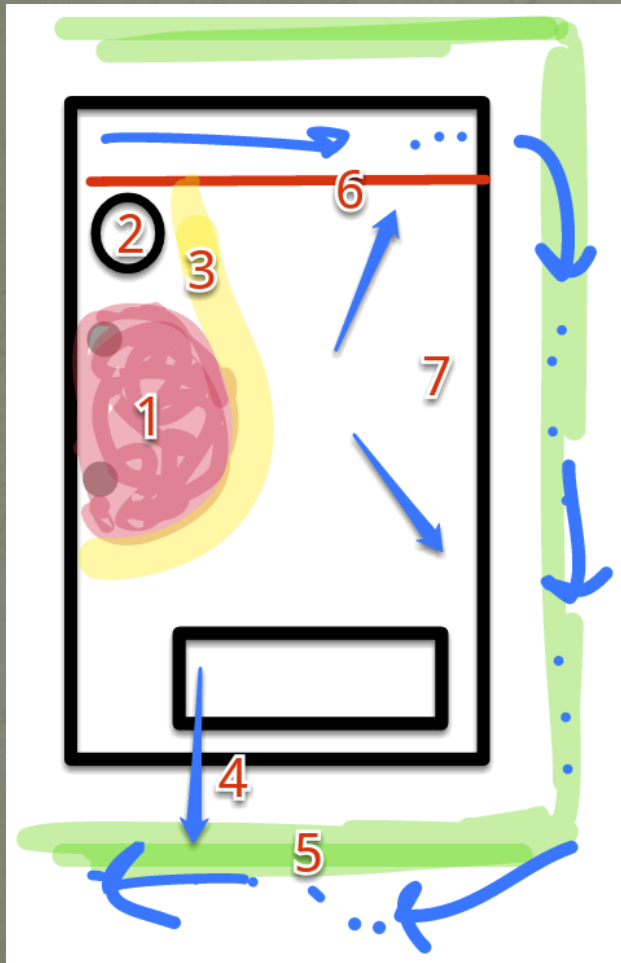
5. Give water a place to go. Swales work well just as long as they aren't too flat.



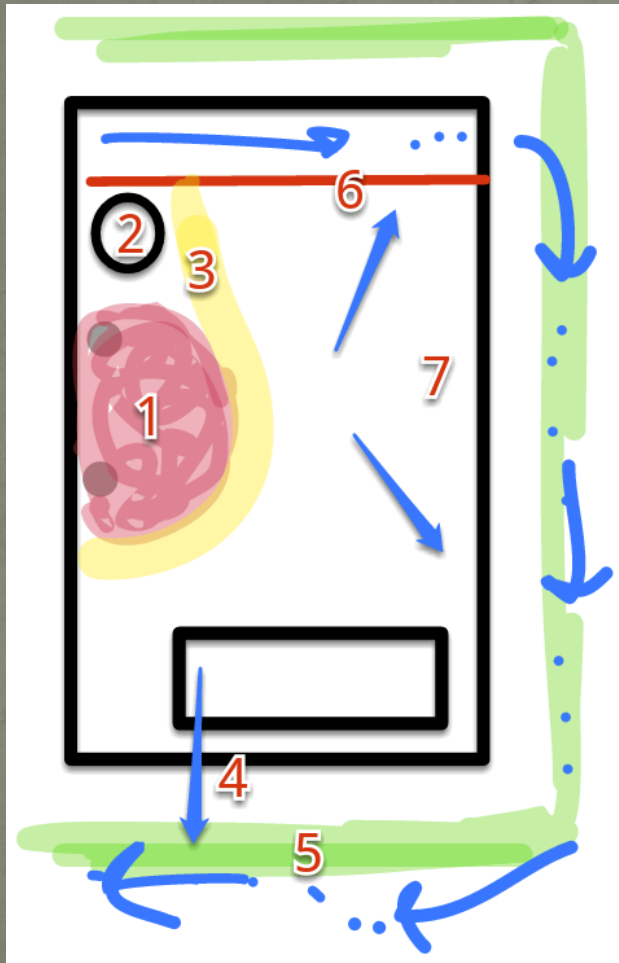
Drainage ditches need to be sloped enough to drain. 6" of depth for every 25' of length is a good minimum.

Solutions...

5. Provide “buffer” areas around your pastures and paddocks.



Solutions...



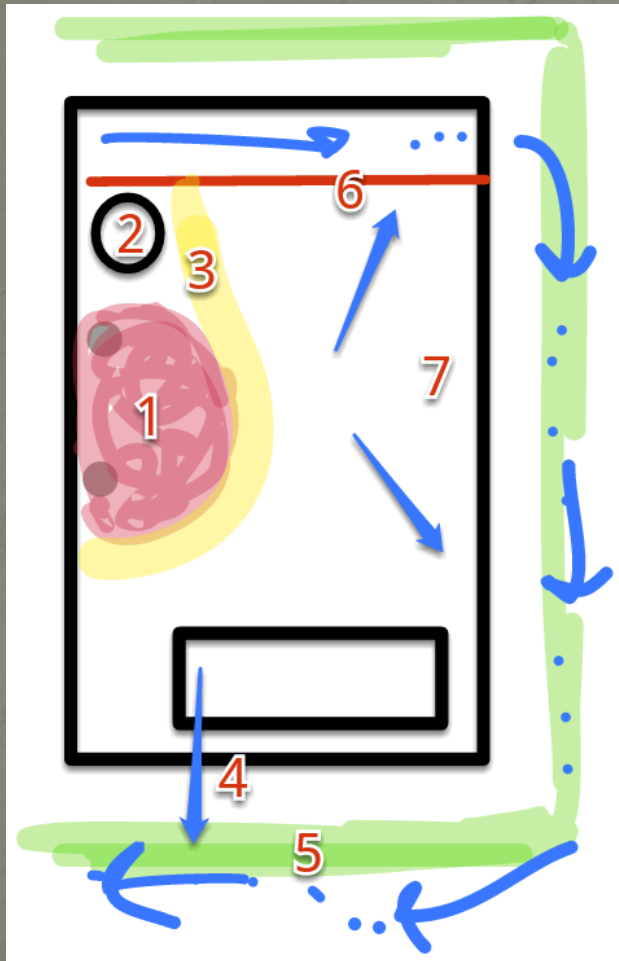
6. Keep horses out of creeks, low areas, and ditches, especially in winter.



Temporary fencing (like hotwire or panels) can be used during the winter. Horses should be kept out of creeks year round.



Solutions...



7. If you can, re-grade your pasture to eliminate low spots and direct water around your pastures and paddocks.



Areas that have been graded will need to be replanted. This will take some time, so plan ahead.



Remember: some of this work requires permits.

Don't forget the wash rack!



Cover wash areas- make sure drains are connected to sewer.



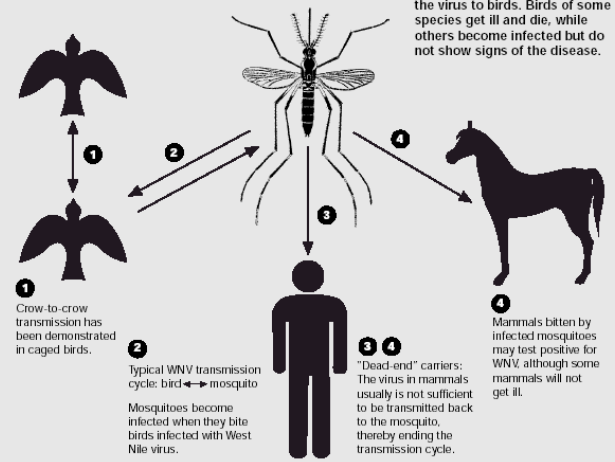
All that stuff goes somewhere...



Direct wash water to lawn or landscape. Make sure it doesn't go to a storm drain or ditch.



Mosquitoes and why we hate them...



Solutions...

- Dump standing water!
- Water that sits for as little as 3 days can start breeding mosquitoes.
- Scrub it out.
- Think of other spots water can hide.



Manure and why we hate it...



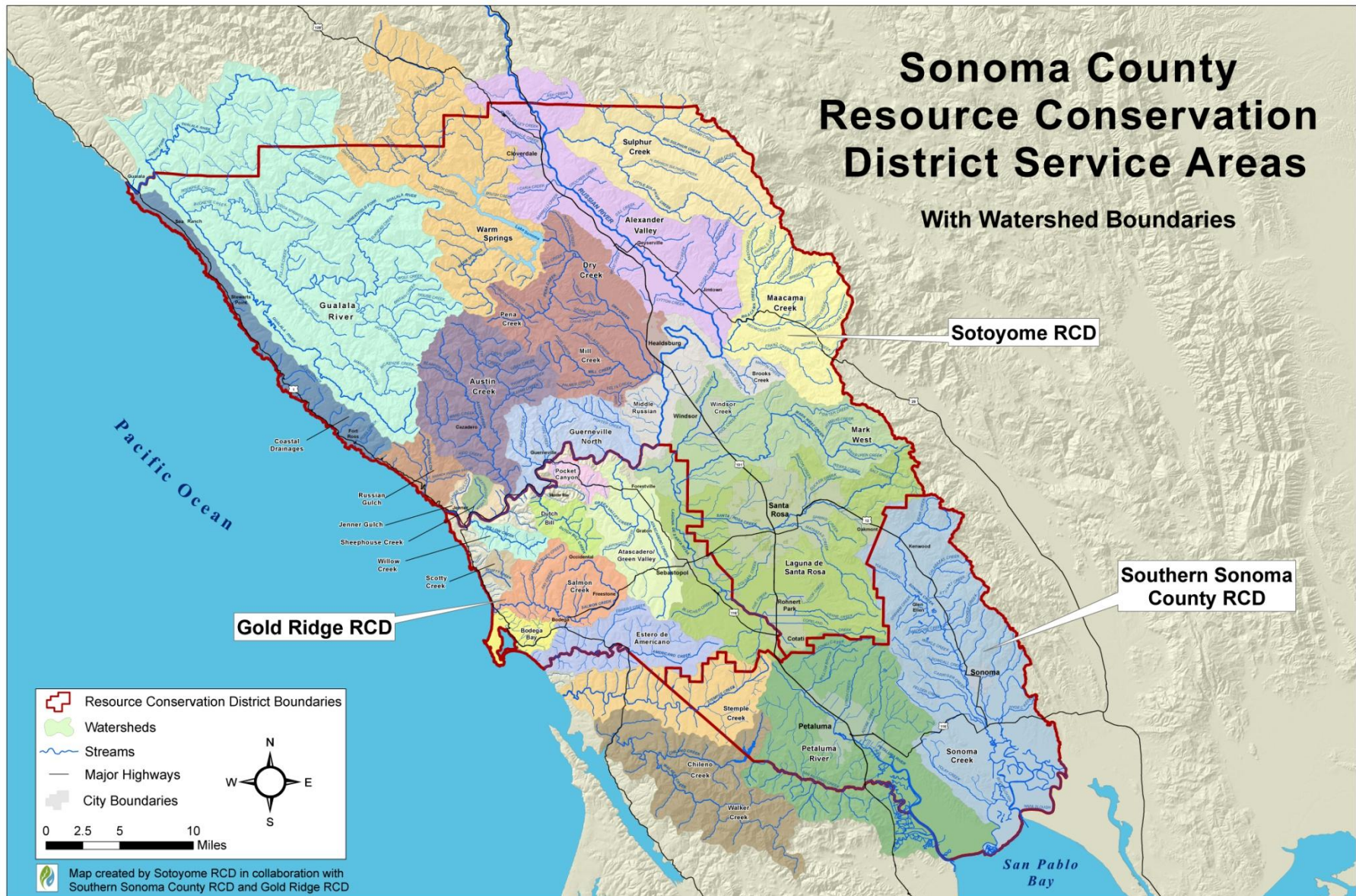
Solutions...

- Store manure in bins.
- Make sure your bins have covers or cover with plastic before it rains.
- Compost your manure.
- Have your manure hauled off regularly.
- Locate manure bins and piles in a high spot and keep water from flowing through the area.



Sonoma County Resource Conservation District Service Areas

With Watershed Boundaries



Map created by Sotoyome RCD in collaboration with Southern Sonoma County RCD and Gold Ridge RCD

Assess your property for:



Identify projects and management practices

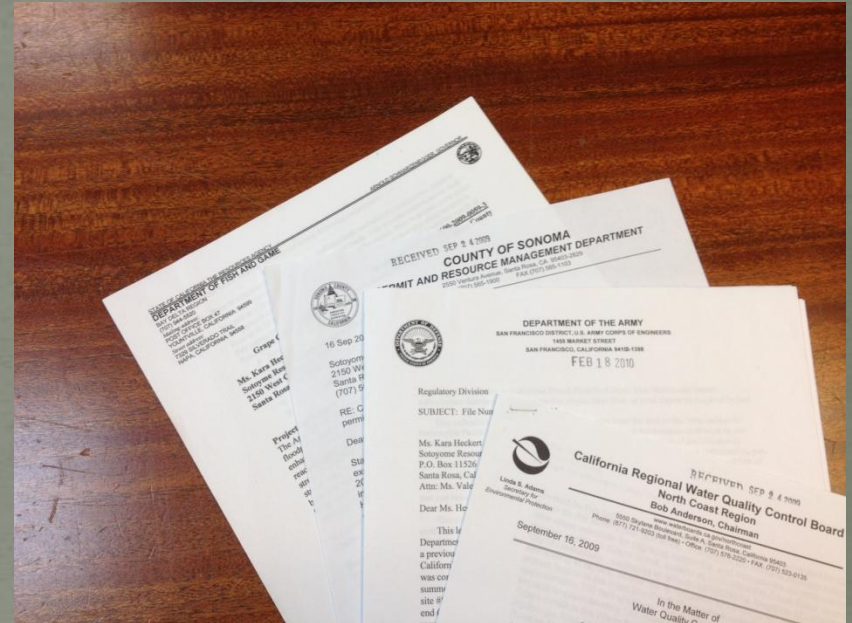
Prioritize

- Urgency
- Ease
- Costs
- Permits
- Resources Available



Resources

- Assessment/planning assistance
- Funding assistance
- Permitting assistance



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SOTOYOME



RESOURCE

CONSERVATION DISTRICT