

CSI--Wildlife

Gary J. San Julian

Wildlife Specialist

Linda Wiles

Extension Educator

Penn State University





http://www.mmpp.com/masc.nsf/image_predator_claim3.jpg



<http://www.gov.ns.ca/natr/wildlife/nuisance/images/raccoons/raccoon1.gif>



http://www.draperbee.com/info/photo%20album/bear_damage2text.jpg



<http://www.womenhunters.com/linda-bear-scat.jpg>



<http://www.bear-tracker.com/deersc2.jpg>

Track Identification

The most commonly found tracks can sometimes be confusing. How do you tell the difference between the tracks of dogs and cats? Was that track you found on the trail left by a mountain lion or a big dog? There are some clues that will help you tell the difference between dog and cat tracks. **Dogs include such species as red and gray foxes, coyotes, wolves and domestic dogs. Cats include mountain lions, bobcats, lynx, and domestic** <http://www.bear-tracker.com/caninevsfeline.html>

A: The claw marks. Dogs usually show claw marks in their tracks..

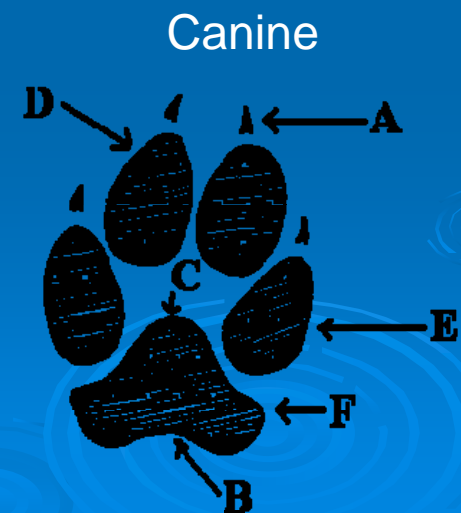
B: The lack of a third lobe on the hind edge of the heel pad.

C: The shape of the leading edge of the heel pad is a single lobe. See cat tracks for difference.

D: The alignment of the front two toes. They are side-by-side,

E: The almost triangular shape of the pads of the outer two toes. It is not very obvious.

F: Dogs have a little point where the heel pad turns. Cats share this feature.



Cat vs. Dog Track ID

1: Cats almost never have claw marks, but dogs do.

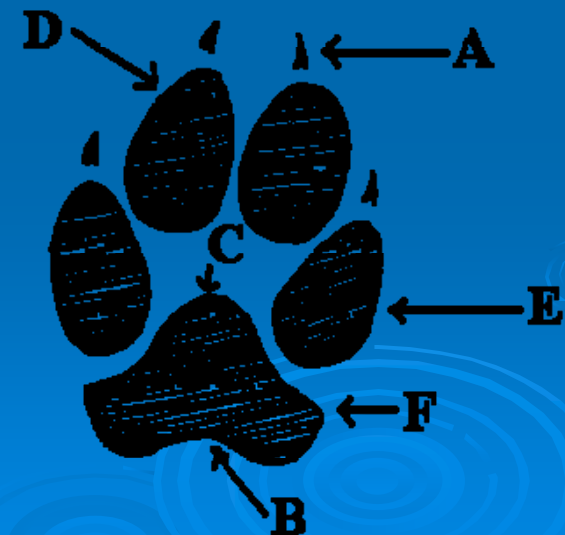
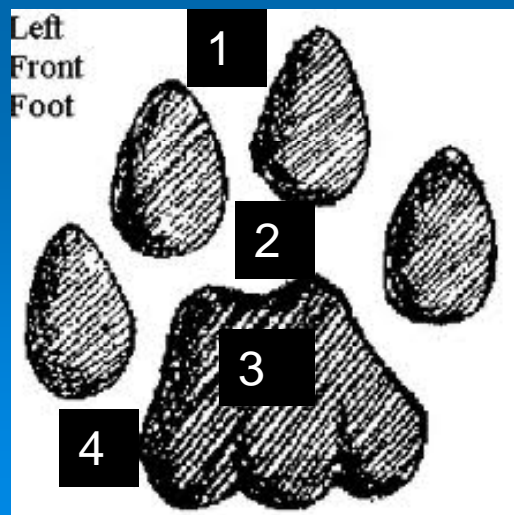
Note that the front two toes are not lined up side-by-side as the dog prints were.

2: The leading edge of the heel pad has two parts, or lobes.

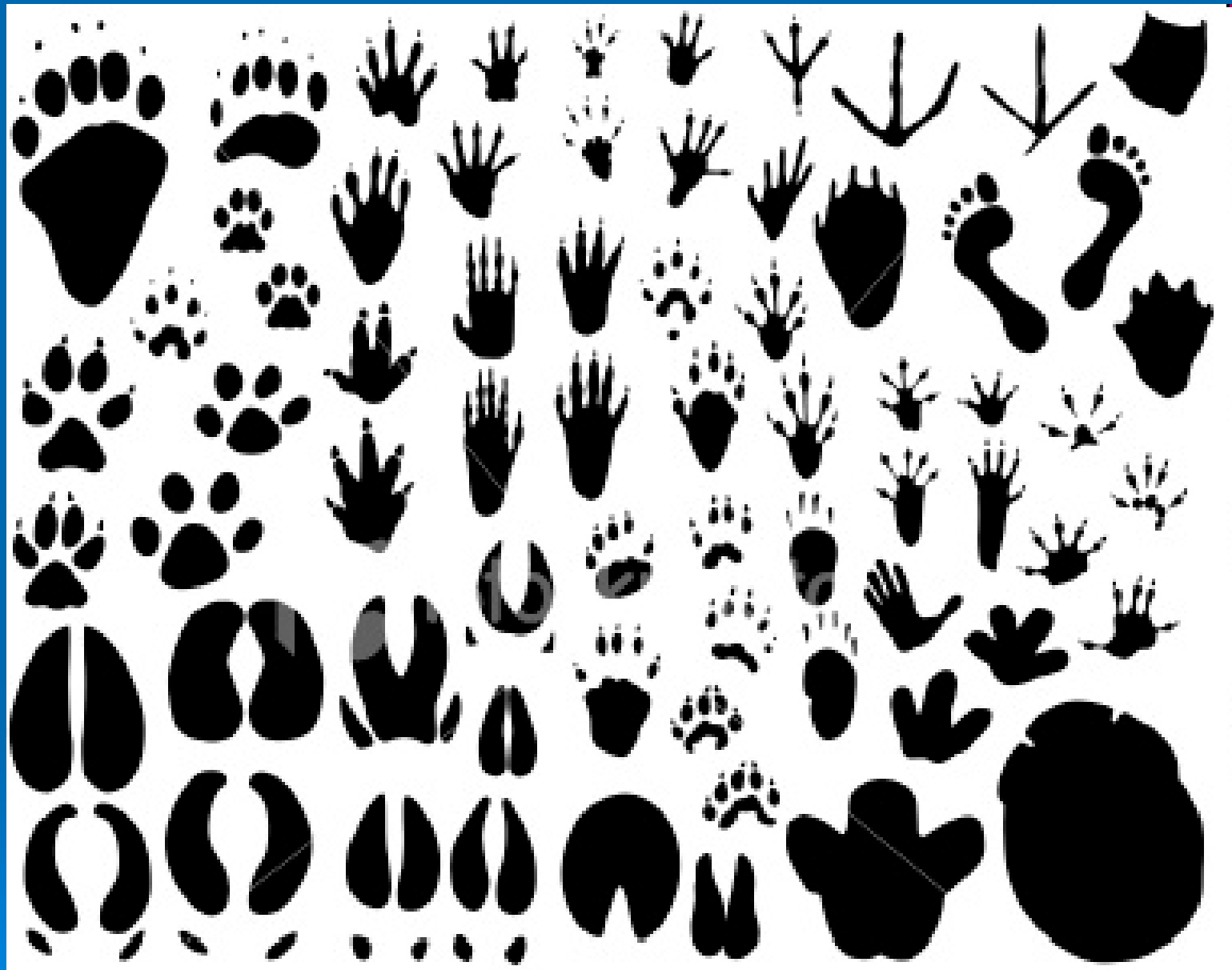
3: The hind edge of the heel pad has three parts, or lobes. They are aligned with each other.

4: This is the front track. One clue that tells you this is that the edge of the heel pad is relatively straight.

Cat Track



Dog track



Scat Identification

- Feces identification, also known as scat, can be a difficult task as feces change according to the animal's diet. However, by asking the right questions you can go a long way to reduce the number of available suspects.
- WARNING: Before you begin identification of scat be sure to read our safety information.
- Be safe. Droppings are dirty and germy. Avoid handling droppings without proper protection, which includes avoiding inhaling around it. Some diseases may be contracted through dust borne particles.

<http://icwdm.org/inspection/trees.asp>

Scat Identification

- **What Color are the Droppings?**
- White? (click Yes if any part of the dropping has white)
- Or Non-White ?
- Pictures
- Not as accurate as the question method in identifying scat.
- Scat Dichotomous Key
- Although not a complete key, it can be very helpful in narrowing down possible suspects.

<http://icwdm.org/inspection/trees.asp>

Scat Identification

- **Important Observations to Make When Identifying Scat**
- Determine its size both in length and width.
- Identify its form.
 - Is it round like a pellet?
 - tubular?
 - Are the ends flat or pointed or is one end flat and the other pointed?
 - Is it smooth from one end to the other? Or is it segmented like a natural fibered rope?

<http://icwdm.org/inspection/trees.asp>

Scat Identification

- Is there one dropping or multiple?
- Can you identify any hair or food particles in the droppings? Sometimes corn, berries, seeds, and insect wings aren't completely digested.
- What time of day do you find the droppings? Would they have been left at night or during the day?
- Is it a one time event or does it occur in the same general spot for several days?

<http://icwdm.org/inspection/trees.asp>



© Kim A. Cabrera 2007



Gobbler Scat



Hen Scat

Bear



Bear



http://www.nps.gov/dena/images/bear_tracks_in_mud_web.jpg



<http://naturalsciences.org/microsites/education/treks/swans05/images/Black-bear-tracks.jpg>



http://67pics.com/view2.php?q=Pictures%20Bear%20Tracks&url=http://clipart.usscouts.org/library/BSA_Cub_Scouts/Cartoons/bear_tracks.gif

Bear



**Black Bear
Scat**



© Kim A. Cabrera 2008



© Kim A. Cabrera 2008

**Black Bear Scat -
Apples/Seeds/Berries**



**Black Bear Scat
with Rubber Band Inside**

© Kim A. Cabrera 2009



Bear



http://www.state.nj.us/dep/fgw/images/bear/crop_damage.jpg

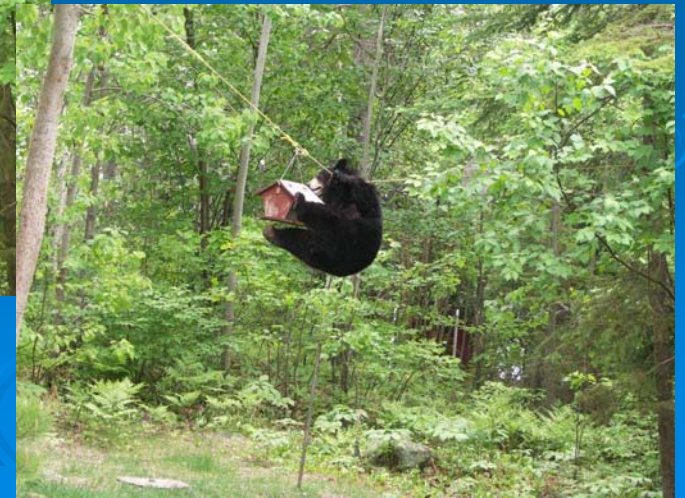


http://www.state.nj.us/dep/fgw/images/bear/crop_damage.jpg



http://farm5.static.flickr.com/4106/5000139408_8177b2a9f7.jpg

Bear



Coyote



Billie Cromwell/Retired PGC

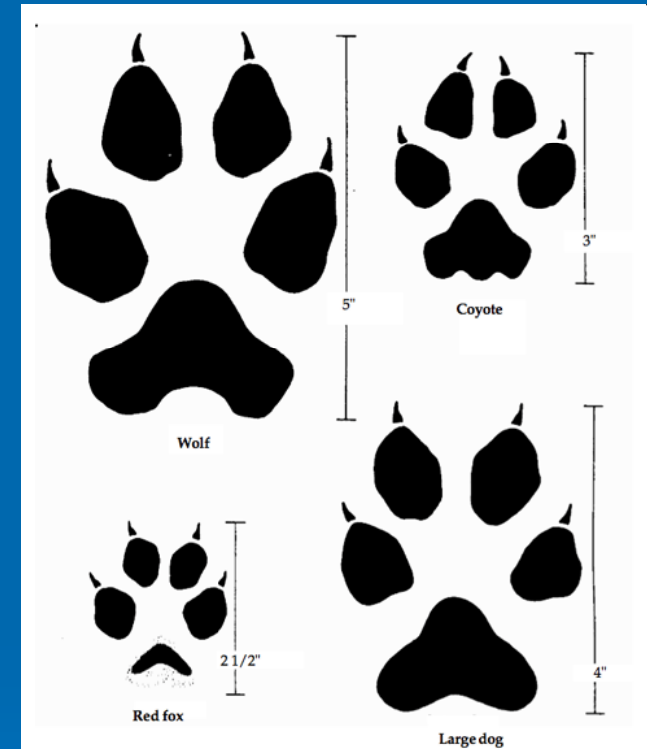


Coyote



http://www.capelinks.com/images/photo-gallery/nature/coyote_tracks_beach.jpg

Front claws pointed in



http://www.desertusa.com/june96/coyote_dog_wolve_fox_prints.gif

Notice that the coyote track is more oval than the domestic dog

Coyote



<http://www.bear-tracker.com/coy2scat.html>





Coyote



<http://www.gainesville.com/article/20100509/ARTICLES/5091009>

<http://grec.ifas.ufl.edu/watermelons/AnimalPests/coyote-.jpg>

Coyote

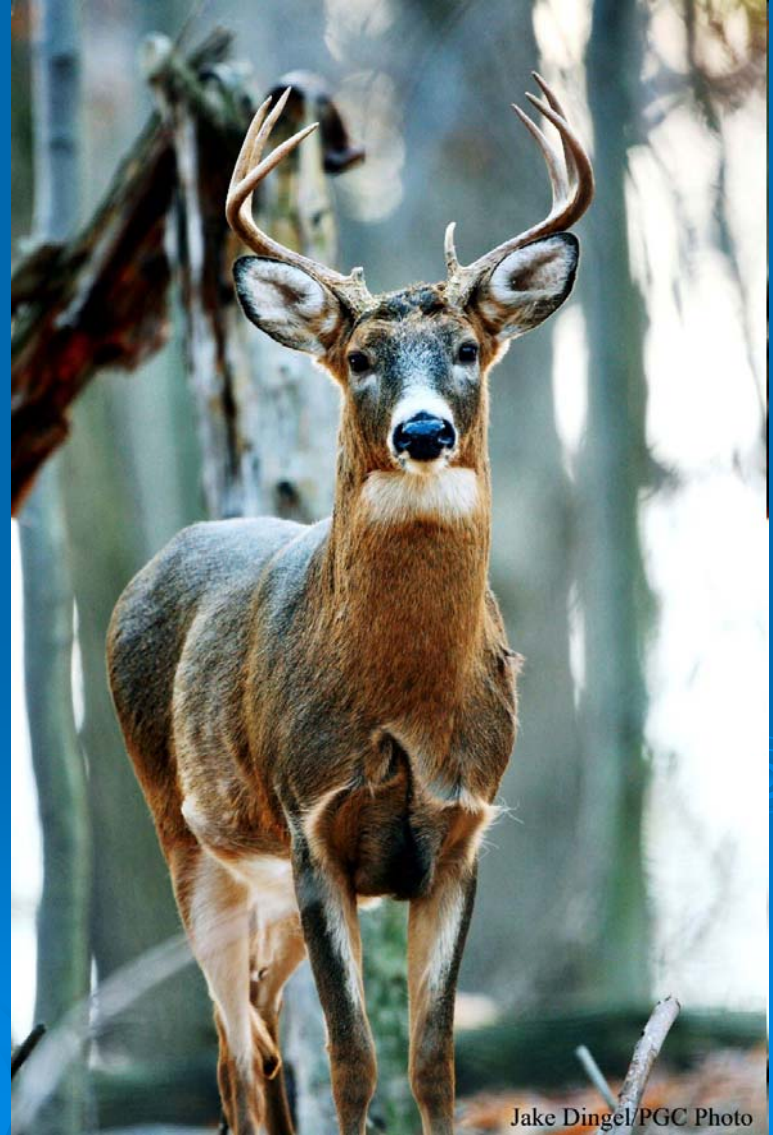


<http://www.ipm.ucdavis.edu/PMG/IMAGES/S/V-MA-SBEE-CD.017.jpg>

Deer



Joe Kosack/PGC Photo



Jake Dingel/PGC Photo

Deer



Jake Dingel/PGC Photo



DEER TRACKS

Using The Tracks To Determine
What Type Of Deer You Are Hunting

3-3-1/2 in.



Fawn

4 in.



Yearling Doe

4-1/2 in.



Adult Doe
or Yearling Buck

5 in.



2-1/2 Year-Old
Buck

5-1/2 - 6 in.



3-1/2 - 6-1/2
Year-Old Buck



http://www.fws.gov/northeast/patuxent/gallery/refuge_winter/slides/0520_38919242_DeerTracks001.jpg

http://corditecountryshownotes.files.wordpress.com/2009/10/deer_tracks.gif?w=435&h=604

http://blogs.courant.com/itowns_ec/Deer%20tracks2008%20004.jpg

Deer



<http://www.hiltonpond.org/images/DeerScat01.jpg>



<http://www.bottingnet.com/images/BWEBP6240010-62406.jpg>

Deer



Jake Dingel/PGC Photo

Deer
Scat



<http://www.hiltonpond.org/images/DeerScat01.jpg>



Bear
Scat



<http://pics.livejournal.com/matildasmom/pic/000etkrf>

<http://www.bottingnet.com/images/BWEBP6240009-62406.jpg>

What is this?

Deer



http://www.batguys.com/services/deer/deerdamagedbushes2_sm.jpg



http://farm1.static.flickr.com/144/334494878_bd6ac20850.jpg?v=0



http://ipm.illinois.edu/ifvn/volume15/images/deer_damage_strawberries.jpg



<http://www.fw.delaware.gov/Hunting/PublishingImages/DeerDamage.jpg>

Deer



http://www.imustgarden.com/images/iris_deer_damage.jpg

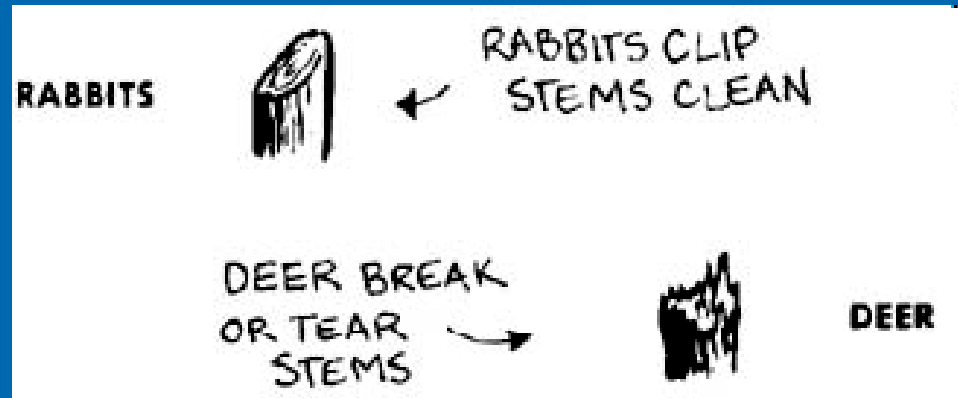


http://www.imustgarden.com/images/Weigela_deer_damage.jpg



http://www.imustgarden.com/images/lillies_before-after.jpg

Deer



http://www.michigan.gov/images/deer_rabbit_browse_57402_7.jpg



http://farm1.static.flickr.com/177/425432759_0ed377709a.jpg?v=0

Deer



<http://randyroberts.files.wordpress.com/2009/03/img-6136.jpg>

http://wiseacre-gardens.com/blog_photos/deer-trail.jpg

Foxes



Jake Dingel/PGC Photo



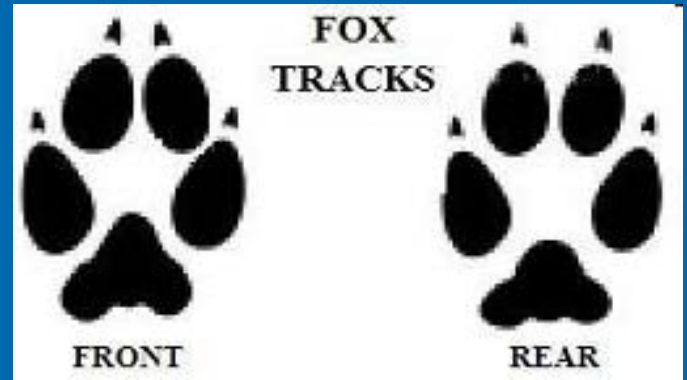
<http://arcticboy.arcticboy.com/view2.php?q=Pictures%20of%20A%20Grey%20Fox&url=http://www.contrib.andrew.cmu.edu/~eswalker/GreyFox.jpg>



Jake Dingel/PGC Photo



Foxes

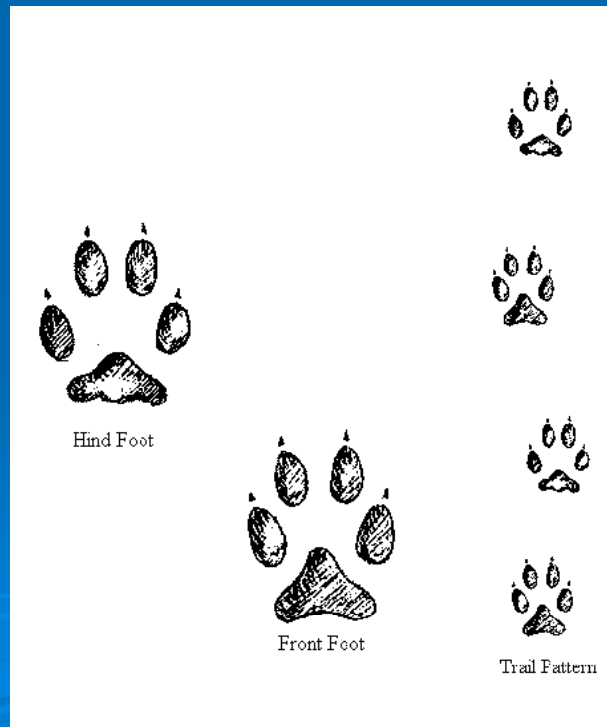


<http://www.kwacs.org.uk/Airgun%20pics/Fox%20tracks.JPG>



Liz Baird

http://naturalsciences.org/microsites/education/treks/journaling_06/images/fox-track.jpg



<http://www.bear-tracker.com/grayfox.gif>

Gray Fox

Foxes



Red fox



Gray Fox

Foxes



<http://www.londonlawncare.co.uk/images/foxdamage-150x150.jpg>



<http://www.growfruitandveg.co.uk/grapevine/attachments/allotment-advice/10504d1250004641-fox-damage-corn.jpg>



http://www.burpee.com/images/product/prod001274/prod001274_lg.jpg



<http://www.all-creatures.org/recipes/images/i-grapes-globe.jpg>

Groundhog

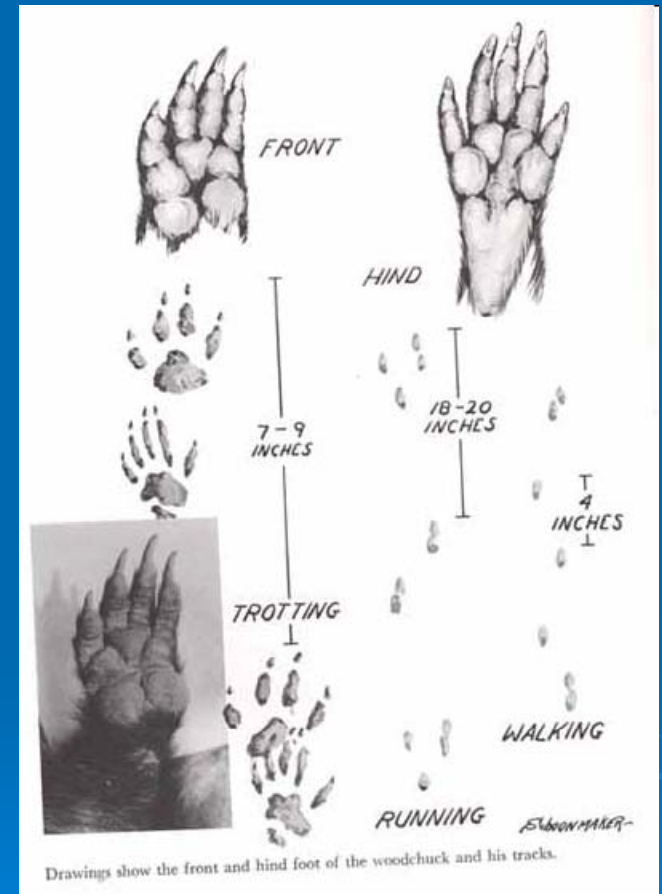




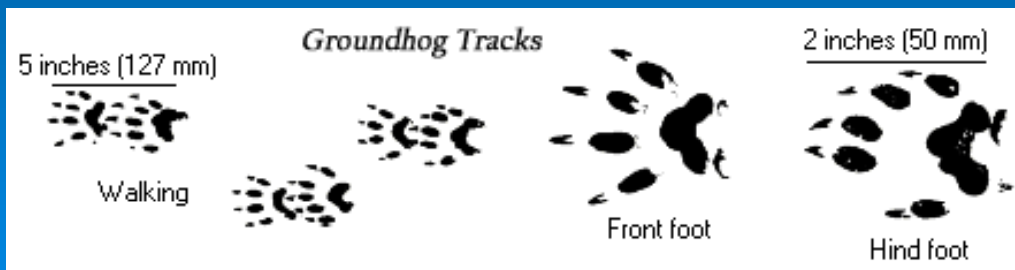
Groundhog



<http://www.rootsvt.com/files/tracking%20and%20awareness%20mud.jpg?1229791192>



<http://www.hoghaven.com/photos/foot.jpg>



<http://www.outwitcritters.com/images/groundhog/tracks.gif>



Groundhog



<http://t0.gstatic.com/images?q=tbn:ANd9GcTlyKsAhzKfS6camKLPgVTbV8zG7FVLu7q4S0YLT14dlseltrlJOg>



<https://www-s.aces.uiuc.edu/photolib/lib1523/th/DSC00376.jpg>

Groundhog



<http://www.bbwildliferemoval.com/images/damagegh3.jpg>



http://api.ning.com/files/KBHtF3Od-GsP75HVFcAZ3axYjQZZK0hrUzBts-*IPiVRV0*pjy-3ww9kYS-FGBauHGdXdCA17BYLKFQfrSKU7p6P-58oD0krBV*S-Wh5Vtl_/Groundhog_Aug_25_08008.jpg



<http://www.bbwildliferemoval.com/images/damagegh5.jpg>

Rabbit



www.naturfoto.cz

© Jiří Bohdal



www.naturfoto.cz © Jiri Bohdal

Rabbit



<http://www.banbloodsports.com/images/rabbtrax.gif>

SNOWSHOE HARE

Snowshoe hares' hind feet are twice as big as their front. Their powerful back legs and feet give them the ability to jump 40 feet at top speed. The hind foot print can be 4-6 inches long.



<http://media.away.com/gifs/activity/skiing/rabbitr.gif>

Rabbit



<http://www.summitpost.org/images/medium/276865.JPG>



http://www.google.com/imgres?imgurl=http://www.biokids.umich.edu/images/signs/leavebehind/deer_rabbit scat_compare.jpg&imgrefurl=http://www.biokids.umich.edu/guides/tracks_and_sign/leavebehind/scat/&usg=__LoOtm02FSFviONYibkpeh2EDKXs=&h=229&w=500&sz=85&hl=en&start=0&zoom=1&tbnid=Ylg5rQA5INJ6HM:&tbnh=90&tbnw=196&prev=/images%3Fq%3DRabbit%2Bscat%26um%3D1%26hl%3Den%26client%3Dfirefox-a%26sa%3DN%26rls%3Dorg.mozilla:en-US:official%26biw%3D1600%26bih%3D1079%26tbs%3Disch:1&um=1&itbs=1&iact=rc&dur=471&ei=oFj1TLLVMYP88Aab4sTKBw&oei=oFj1TLLVMYP88Aab4sTKBw&esq=1&page=1&ndsp=44&ved=1t:429,r:3,s:0&tx=56&ty=62

http://octrackers.com/analyzingtherabbitscatlitterbox/analyzerabbitscat91510_picture1.jpg

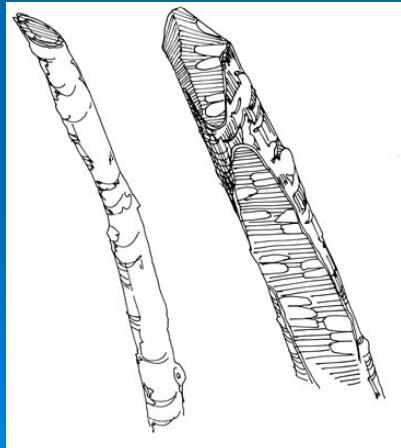
Rabbit



<http://www.gardeningdiary.com/0/rabbits/garden-rabbit-damage-plants.jpg>



http://media.growsonyou.com/photos/blog_photo/image/3003/main/Rabbit_Damage.jpg



<http://toxipedia.org/download/attachments/15658/Rabbit%20Damage.jpg>



<http://www.mobot.org/gardeninghelp/images/Pests/Pest1338.jpg>

Raccoon



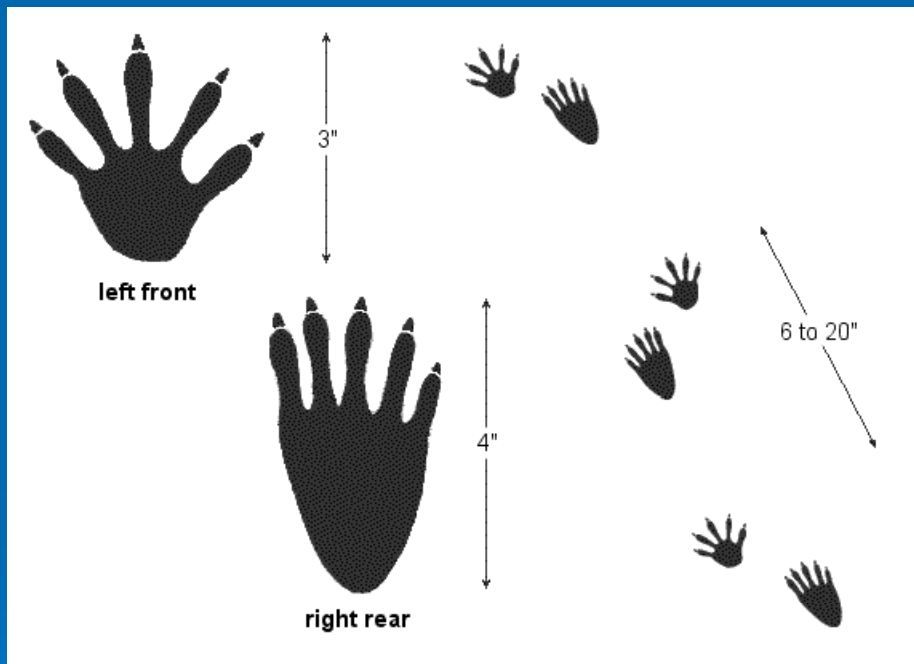
Jake Dingel/PGC Photo



Raccoon



<http://www.wildernesscollege.com/images/raccoon-track.jpg>



<http://www.arkansasoutdoorsonline.com/files/2212/7713/1334/coon%20tracks.png>

http://www.richmondnatureparksociety.ca/images/raccoon_tracks2.jpg



Raccoon



<http://www.wildernesscollege.com/images/raccoon-scat.jpg>



There is significant danger in handling raccoon scat. Raccoons often carry a roundworm parasite



http://farm1.static.flickr.com/108/288993607_b720158192_z.jpg?zz=1



Raccoon



Wildlife Crop Damage Manual
OHIO DEPARTMENT OF NATURAL
RESOURCES
DIVISION OF WILDLIFE



Raccoon



<http://www.urban-wildlife.com/cc1.jpg>



http://www.erie-county-ohio.net/eswcd/wildlife/jpg/raccoon_damage.jpg



<http://icwdm.org/inspection/indoorstep1.asp#Holes>

Skunk



<http://www.saynotocrack.com/wp-content/uploads/2008/07/skunk.jpg>

Skunk



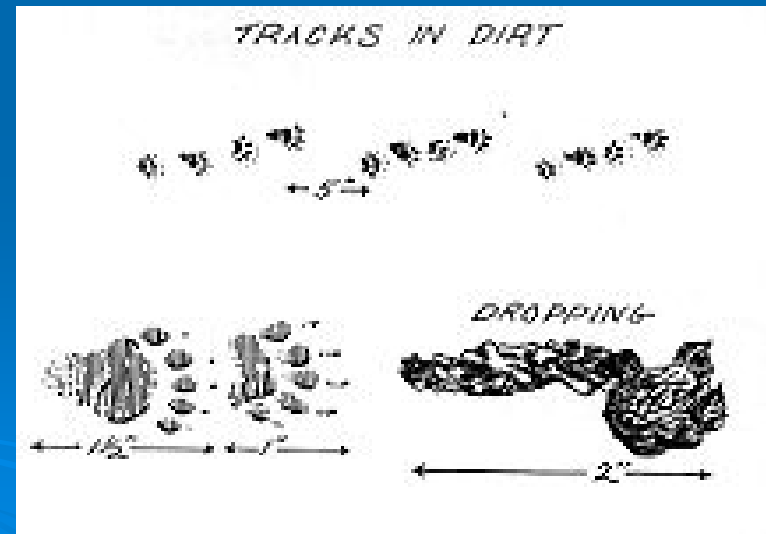
<http://www.saynotocrack.com/wp-content/uploads/2008/07/skunk.jpg>



http://animaldiversity.ummz.umich.edu/site/resources/phil_myers/ADW_mammals/Carnivora/skunk6488.jpg/medium.jpg



<http://wdfw.wa.gov/living/species/graphics/skunk3.jpg>



<http://www.nationalgeographic.com/species/skunk/skunk.jpg>

Skunk



<http://www.saynotocrack.com/wp-content/uploads/2008/07/skunk.jpg>



<http://www.acornnaturalists.com/store/images/ProdImages/SC-16256.jpg>



http://www.google.com/imgres?imgurl=http://parish-wildlife.org.uk/images/Pictures/Visits/Bealsmill/fox%2520poo.jpg&imgrefurl=http://answers.google.com/answers/threadview/id/768372.html&usg=__PdQnviaTuVpzYEaoEvMvGs9MMWk=&h=340&w=350&sz=21&hl=en&start=0&zoom=1&tbnid=_zz0NcMBC2fCbM:&tbnh=153&tbnw=157&prev=/images%3Fq%3Dpictures%2Bof%2Bskunk%2Bfeces%26hl%3Den%26client%3Dfirefox-a%26sa%3DX%26rls%3Dorg.mozilla:en-US:official%26biw%3D1600%26bih%3D1079%26tbs%3Disch:1%26prmd%3Di&itbs=1&iact=hc&vpx=969&vpy=81&dur=326&hovh=153&hovw=157&tx=141&ty=132&ei=SG71TKeBCcP98AbZgJXJBw&oei=SG71TKeBCcP98AbZgJXJBw&esq=1&page=1&ndsp=46&ved=1t:429,r:4,s:0



http://www.google.com/imgres?imgurl=http://themedowsedge.files.wordpress.com/2008/11/scat1.jpg&imgrefurl=http://themedowsedge.wordpress.com/2008/11/10/sign-of-the-skunk/&usg=__JXnzttxka7irJxZaEKae--U_BTg=&h=480&w=640&sz=156&hl=en&start=46&zoom=1&tbnid=ZDWwGro2HrBxqM:&tbnh=138&tbnw=183&prev=/images%3Fq%3Dpictures%2Bof%2Bskunk%2Bfeces%26hl%3Den%26client%3Dfirefox-a%26sa%3DX%26rls%3Dorg.mozilla:en-US:official%26biw%3D1600%26bih%3D1079%26tbs%3Disch:10%2C756&itbs=1&iact=hc&vpx=1016&vpy=637&dur=47&hovh=194&hovw=259&tx=91&ty=122&ei=8G71TNiIGsP88Aaxj_2gBw&oei=SG71TKeBCcP98AbZgJXJBw&esq=2&page=2&ndsp=50&ved=1t:429,r:21,s:46&biw=1600&bih=1079

Skunk



<http://www.totalwildlifecontrol.com/get-rid-of-skunk.html>



<http://wildliferemovallosangeles.com/img/photo-gallery/skunk-damage.jpg>



Squirrel



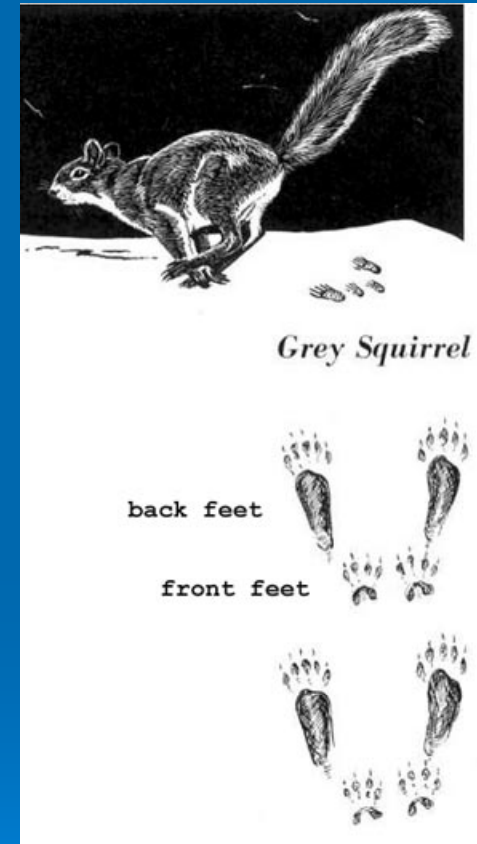
A Fuzzy-tailed Rat



Squirrel



http://farm4.static.flickr.com/3420/3213343119_efa1645312_o.jpg



<http://home.earthlink.net/~snailstales/sqrltrck4.JPG>

Squirrel



http://1.bp.blogspot.com/_E2vUpjF2Ino/TDqIYe3bjhI/AAAAAAAAA5Q/E1vrLgmcmbU/s1600/499.JPG

Tracks in the mud



<http://www.247wildlife.com/photos/poop011.jpg>

Droppings in an attic

Squirrel Damage



<http://www.allwildlifecontrol.com/images/SquirrelinGutterHead2-1.jpg>



http://1.bp.blogspot.com/_27yaP5sJAYg/SxAEzOnm7YI/AAAAAAAAAB3A/uxWf9uAuRVo/s1600/wood-duck-08-squirrel.jpg

A prelude to
home invasion

Squirrel Damage



http://www.imustgarden.com/images/squirrel_damage1.jpg



<http://www.homebysunset.com/.a/6a00d834cdafac69e2013487f6cede970c-500wi>



http://www.imustgarden.com/images/squirrel_damage_CM.jpg



<http://t2.gstatic.com/images?q=tbn:EEQiuzDmaoBpmM:http://givingtreegardens.com/publishImages/TheSeed41~~element704.jpg&t=1>

Squirrel Damage

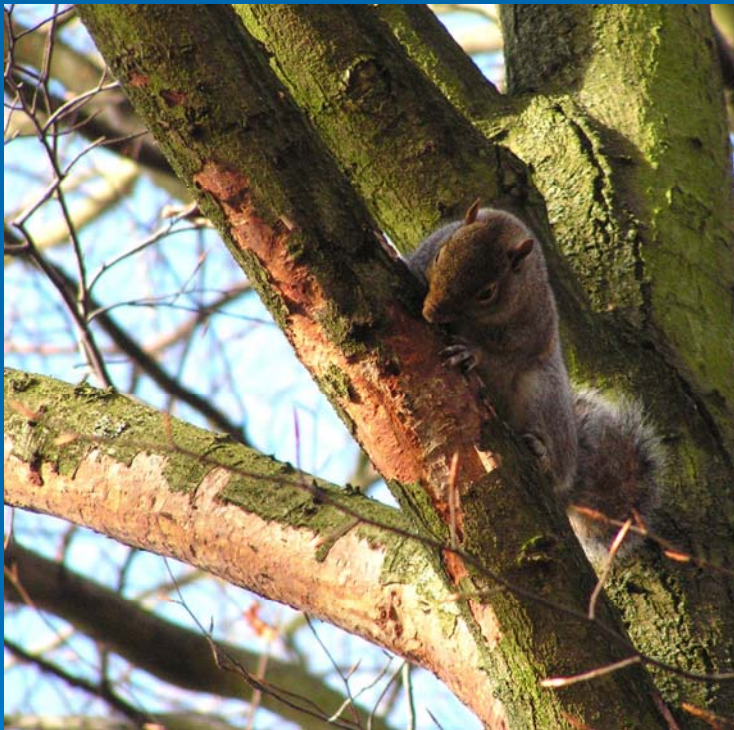


http://www.imustgarden.com/images/squirrel_damage_crepe_myrtle.jpg



http://www.imustgarden.com/images/squirrel_damage_birdhouse.jpg

Squirrel Bark Stripping



http://4.bp.blogspot.com/_3gH3sLr46NI/SxBET58GkXI/AAAAAAAAAEI/Zq6B0RApgle/s1600/Squirrel-3.jpg



<http://icwdm.org/Images/squirrelstree/Foxsquirrelbark3.jpg>



Voles



Meadow compared to Woodland Vole





Meadow Vole



<http://www.fcps.edu/islandcreekes/ecology/Mammals/meadow%20vole/vole2.jpg>



<http://nhfruitgrowers.org/blog/wp-content/uploads/2009/03/vole1.jpg>



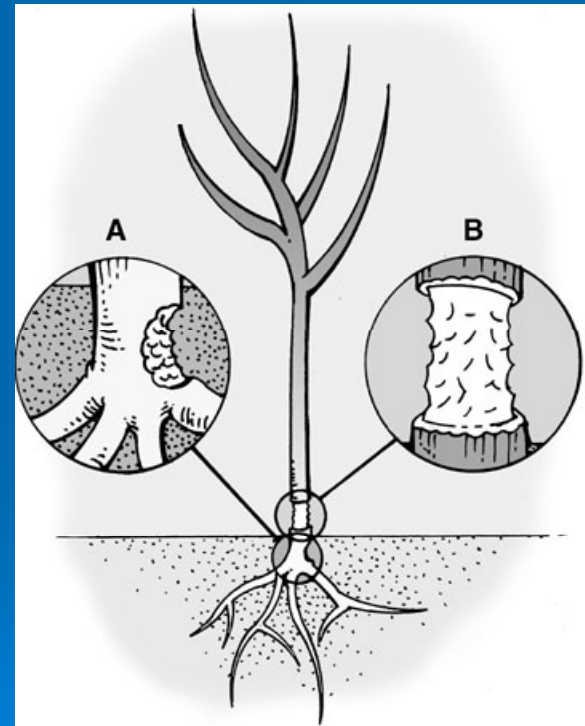
http://www.ecobcol.com/images/animals/meadow_vole_law1a.jpg

Look for
teeth marks

Woodland Vole



<http://www.mobot.org/gardeninghelp/images/Pests/Pest424.jpg>





Meadow Vole

<http://www.fcps.edu/islandcreekes/ecology/Mammals/meadow%20vole/vole2.jpg>





<http://v>



www.naturfoto.cz

© Jan Ševčík



Meadow Vole

<http://www.fcps.edu/islandcreekes/ecology/Mammals/meadow%20vole/vole2.jpg>



http://3.bp.blogspot.com/_FmsvnUKKCZ8/SrurhV84ENI/AAAAAAAAAww/iW8KC3dADsU/s400/DSC06542+++Copy.JPG



<http://yourwildlifepro.com/wildlife/management/virginia/voles-3.jpg>



Woodland Vole



<http://www.mobot.org/gardeninghelp/images/Pests/Pest424.jpg>
<http://www.mobot.org/gardeninghelp/images/Pests/Pest424.jpg>

Sign Underground burrows about 1 1/4" in diameter and usually in areas with soft soil; they can be found in woodlands by poking fingers into the ground.

Track Hindprint 1/2" long, with 5 toes printing;
foreprint 3/8" long, with 4 toes printing; hindprints ahead of foreprints.



Woodland Vole



<http://www.mobot.org/gardeninghelp/images/Pests/Pest424.jpg>



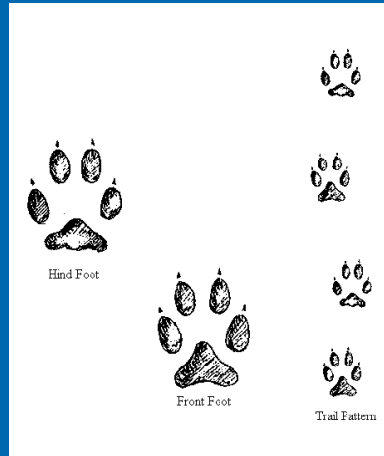
http://www.pinebarrensanimals.com/web_images/pix1/WoodlandVole2.jpg



Source: Curtis, B, D. Curtis, and W. Miller. 2009. Relative Resistance of Ornamental Flowering Bulbs to Feeding Damage by Voles. HortTechnology 19:499-503.



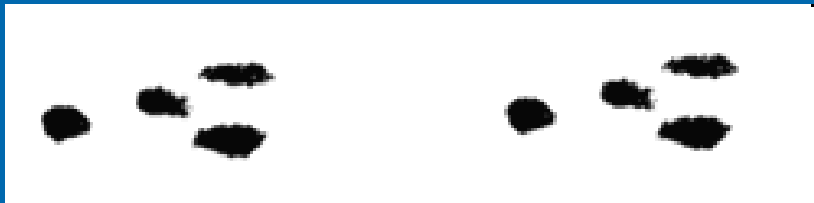
Bear



Fox



Groundhog



Rabbit



Coyote



Deer



Skunk



Fox



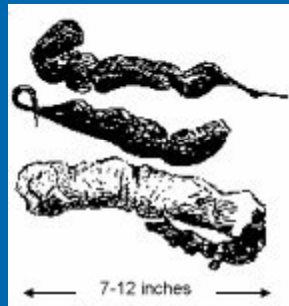
Raccoon



Skunk



Rabbit



Coyote



Deer



Groundhog

CSI—Wildlife
Scatologist & Trackologist

Certificate

Name _____

Date _____