



UF IFAS Range Cattle REC



2018 Youth Field Day

June 7

~ *Table of Content* ~

Schedule 2
“Thank You!” To Our Sponsors 3
Youth Field Day Staff 4
Expo Participants 6
RCREC Quick Facts 7
RCREC Cattle Management..... 8
Web Resources 9

LITERATURE FOR MORNING CLASSES

Wildlife Rangelands & Ecosystem Tour10
Gut Check.....14
Grass Ain’t Free20
Score! How to win at knowing the body condition of your cow herd.....22
How Good is Your Forage? How you can know45
Does your cattle’s diet have what it takes?46

Youth Field Day 2018

~ *Schedule* ~

7:15 a.m. Check-in/Registration Opens (for the morning tour)

8:00 a.m. Rangeland Tour Departs (tour will return around 9:20)

8:30 a.m. Check-in/Registration opens for those not attending the tour

9:25 a.m. Welcome – Instructions – Meet your group leaders.

9:30 a.m. Groups begin class rotations (25 minutes each)

"Gut Check" (Rumen Dissection)

"SCORE! - How to win at knowing the body condition of your cow herd"

"Grass Ain't Free"

"How good is your forage? - How you can know"

"Does your cattle's diet have what it takes?"

Learning Expo Booths Open - 12:00 – 2:00 p.m.

Located under tent to the west of the Grazinglands Education Building

12:00 p.m. Lunch - Groups Red A, Green A, and Blue A

12:45 p.m. Lunch - Groups Red B and Green B

2:00 p.m. Field Day Ends

Thank you to our Sponsors!

Allied Industry Council

C.R. Melear Dairy

Dairy Feeds, Inc.

Doyle Carlton Ranches

Farm Credit of Florida

Gulf Coast Research and Education Center

Hardee County Farm Bureau

Manatee County Cattlemen's Assn.

United Feed Co-op.

Wauchula State Bank

A very special "Thank You" to everyone who has had a part in today's program! We are very grateful for your time, assistance, support, and donations!

Youth Field Day 2018

~ Staff ~

Class Stations

"Gut Check" (Rumen Dissection)

Colleen Larson,
UF/IFAS Okeechobee Co. Ext.
Lauren Butler,
UF/IFAS Okeechobee Co. Ext.
Cole Verano,
UF/IFAS Okeechobee Co. Ext.

"SCORE! - How to win at knowing the body condition of your cow herd"

Philippe Moriel,
UF/IFAS Range Cattle REC
Julie Warren,
UF/IFAS Range Cattle REC
Matheus Piccolo,
UF/IFAS Range Cattle REC
Miguel Miranda,
UF/IFAS Range Cattle REC

"Grass Ain't Free"

Chris Prevatt,
UF/IFAS Range Cattle REC
JK Yarborough,
UF/IFAS Orange County Ext.

"How good is your forage? - How you can know"

Joao Vendramini,
UF/IFAS Range Cattle REC
Hiran da Silva,
UF/IFAS Range Cattle REC
Rhaize de Oliveira,
UF/IFAS Range Cattle REC
Jhone Sousa,
UF/IFAS Range Cattle REC

"Does your cattle's diet have what it takes?"

Juliana Ranches,
UF/IFAS Range Cattle REC
Brittany Dunlap, (volunteer)
UF/IFAS Range Cattle REC

Group Leaders

- Red A -** Christa Kirby, Livestock Agent, Manatee Co. Ext.
Cindy Holley, Biological Scientist, UF/IFAS Range Cattle REC
- Red B -** Sonja C. Crawford, Youth Development/Livestock Agent, Hendry Co. Ext.
Yanyan Lu, Ph.D. Student, UF/IFAS Range Cattle REC
- Green A -** Taylor Davis, Livestock Agent, UF/IFAS Highlands County Extension
Derek Beaty, Volunteer, UF/IFAS Range Cattle REC
- Green B -** Katharine McWhorter, Volunteer, UF/IFAS Range Cattle REC
Austin Bateman, Herdsman, UF/IFAS Range Cattle REC
- Blue A -** David Womble, Agriculture Tech, UF/IFAS Range Cattle REC
Cameron Cato, Intern, UF/IFAS Range Cattle REC

Morning Rangeland Tour

Raoul Boughton, Assistant Professor, UF/IFAS Range Cattle REC
Bethany Wight, Biological Scientist, UF/IFAS Range Cattle REC
Wes Anderson, Ph.D. Student
Alli Smith, M.S. Student

RCREC Staff and Students Assisting

Randy Crawfis, Lauria Gause, Dennis Kalich, Christina Markham, Terry Neels, Kim Parks, Jeff Steele, Jacob Miller, Tom Fussell, Zhulin Xue

Youth Field Day Committee

Lauren Butler, UF/IFAS Okeechobee Co. Extension, Agriculture and Livestock Agent/
County Extension Director
Sonja Crawford, UF/IFAS, Hendry Co. Extension, Livestock /4-H Agent
Andrea Dunlap, UF/IFAS Range Cattle REC, Educational Media/Communications
Coordinator
Christa Kirby, UF/IFAS Manatee Co. Extension, Livestock Agent,
Colleen Larson, UF/IFAS Okeechobee Co. Extension, RSA Agriculture Agent
Chris Prevatt, Livestock & Forage Economist, UF/IFAS, Range Cattle REC, State
Specialize Agent
Philippe Moriel, UF/IFAS, Range Cattle REC, Assistant Professor

~ Expo Participants ~

Block and Bridle Club at UF

Victoria Roe

<http://animal.ifas.ufl.edu/students/clubs/BnB/>

Florida Automated Weather Network (FAWN)

Rick Lusher

(352) 846-3219

rlusher@ufl.edu

<http://fawn.ifas.ufl.edu/>

Florida Fish and Wildlife Conservation Commission (FWC)

Brian Norris

<http://myfwc.com/>

Junior Florida Cattlemen's Association

<http://www.floridacattlemen.org/jfca/>

Mosaic Company

Heather Nedley & Morgan Odum

<http://www.mosaicco.com/florida/>

Polk State College

<https://www.polk.edu/>

South Florida State College

Kendall Carson

kendall.carson@southflorida.edu

www.southflorida.edu

UF Animal Sciences Department

Amie Imler

<http://www.animal.ufl.edu/>

UF/IFAS CALS at Plant City

Jason Steward

jsteward@ufl.edu

813-757-2280

UF/IFAS Gulf Coast REC

Christine Cooley

www.gcrec.ifas.ufl.edu/

UF/IFAS Everglades REC (barn owls: nature's mousetrap)

Dr. Richard Raid

<https://erec.ifas.ufl.edu/>

UF/IFAS Everglades REC (entomophagy)

Raphael Negrisoli, MS Student

<https://erec.ifas.ufl.edu/>

UF/IFAS Gulf Coast REC

Christine Cooley

<https://gcrec.ifas.ufl.edu/>

UF/IFAS Highlands County Extension

David Austin

<http://highlands.ifas.ufl.edu/index.shtml>

UF/IFAS Range Cattle REC Soil & Water Science

Marta Kohmann, Carolina Barndani, and Kacey Aukema

<http://rcrec-ona.ifas.ufl.edu/>

UF/IFAS Range Cattle REC Wildlife Ecology & Conservation

Wes Anderson (herpetology)

Ali Smith (reading bird bands)

<https://www.rangelandwildlife.com/>

Warner University

Scarlett Jackson

(863)638-7116

scarlett.jackson@warner.edu

www.warner.edu

UF/IFAS Range Cattle Research and Education Center - Quick Facts

- **This Station was established in 1941** for two purposes: 1) to learn how to produce quality forage on the sandy cut-over pinelands; 2) to investigate breeding, feeding and management of beef cattle.
- Much of the proposed land had been sold during the 1915 boom in 10, 20 and 40-acre tracts to people throughout the U.S.A. In the late 1920s when the land boom broke most of the Station area was returned to the county because of unpaid taxes. Hardee Farms and Ranch Inc., Wauchula, redeemed the tax certificates and later sold a large part of the land to the Station Trustees at \$2.25 per acre. Funds for the **purchase of this land** were obtained through private donation and grants from the Hardee Board of County Commissioners.
- The center has been its current size (**2,840 acres**) since 1960.
- **Modern conveniences:** Electric power was provided in 1946, an all-weather road in 1952, and phone service in 1954.
- **The purpose of the center** is to conduct research and provide information that will solve problems related to improving profitability of beef, forage and field crops, and dairy production in central and south Florida.
- The center has **7 faculty members** doing work in soil and water science, animal science (beef cattle), forages, weed science, economics, and wildlife ecology & conservation.
- The center has **20 support personnel**- office manager, research coordinator/farm manager, herdsman, biological scientists, educational media/communications coordinator, custodian, ag. technicians, auto/equipment mechanic, field work assistant, maintenance and a secretary.
- Currently there are **6 Ph.D. students, 5 M.S. students, and several International Exchange Visitors: short-term & research scholars and interns** at the center. Students come to the center to do research toward the degree they are pursuing. We have hosted students from Brazil, Honduras, India, Africa, China, Turkey, Russia, and North America.
- Currently the Range Cattle REC about **600 mature cows, 100 yearling heifers, and 35 bulls. Breeds** include Angus, Brangus, Braford, Brahma, and various crosses.

Contact us:

Phone - 863-735-1314

Fax - 863-735-1930

E-mail - ona@ifas.ufl.edu

Website - <http://rcrec-ona.ifas.ufl.edu>

Range Cattle REC Cattle Management

Herdsman, Austin Bateman

January

1. Cow breeding season begins (1st week)
2. Early wean calves from 1st calf heifers (1st week)

April

1. Remove bulls following 90-day breeding season:
 - a. Vaccinate bulls with Cattlemaster 4 + VL 5, Ultrabac 8, and worm
2. Work all cows and calves;
 - a. Weigh and Body Condition Score (BCS) Cows
 - b. Weigh calves
 - c. Worm cows
 - d. Vaccinate calves with Bovi-Shield Gold 5, Ultrabac 8, One-Shot pasturella, worm
3. Pregnancy check yearling heifers via ultrasound;
 - a. Vaccinate heifers with Cattlemaster 4 + VL 5, and worm

June

1. Pregnancy check cows and Brucella test
2. (greater than or equal to 30 days from prior) Vaccinate calves with Bovi-Shield Gold 5 and Ultrabac 8, One-Shot pasturella, and worm

July

1. (greater than or equal to 30 days from prior) Wean calves and ship

August

1. Work replacement heifers before going onto fall studies;
 - a. Brand, Bangs vaccinate, worm

September

1. Work and sort mature cowherds prior to winter feeding studies;
 - a. Vaccinate with Cattlemaster 4 + VL5, Ultrabac 8, and worm

October

1. Work bulls;
 - a. BSE exam, Brucella test, trich test
 - b. Vaccinate with Bovi-Shield FP4 + VL5, Ultrabac 8, and worm

December

1. Begin heifer breeding as per schedule

~ Web Resources ~

Electronic Data Information Source (EDIS) -

EDIS is the Electronic Data Information Source of UF/IFAS Extension, a collection of information on topics relevant to you: profitable and sustainable agriculture, our environment and natural resources, 4-H and other youth programs, Florida-friendly landscapes, communities that are vibrant and prosperous, and economic well-being and life quality for individuals and families.

<http://edis.ifas.ufl.edu/>

Florida Automated Weather Network (FAWN) -

Weather data is collected every 15 minutes at 43 sites located across Florida.

<http://fawn.ifas.ufl.edu/>

UF IFAS Range Cattle REC -

Learn about upcoming events, see program and contact information for faculty members, and view media resources in the virtual classroom.

<http://rcrec-ona.ifas.ufl.edu/>

UF IFAS Range Cattle REC - Rangeland Wildlife and Ecosystems Program Website

<http://www.rangelandwildlife.com/>

UF IFAS Extension - Solutions for your life -

Each Florida County has an extension office. Do you know about yours? Follow this link to locate your local office and find out about the services they offer. Here you will also learn about the Research Centers and Demonstration Sites in Florida.

<http://solutionsforyourlife.ufl.edu/map/>



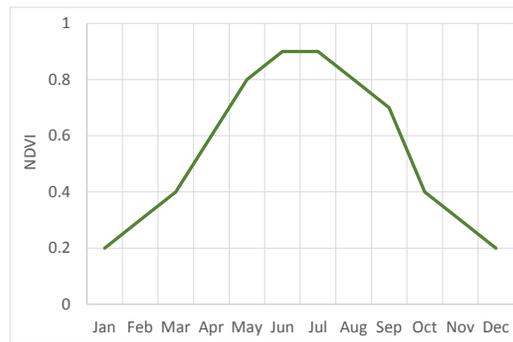
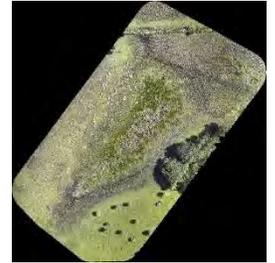
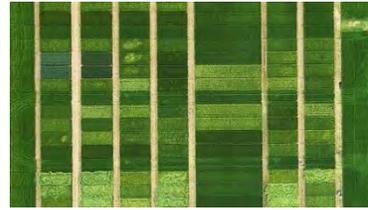
Drones in Science



Drone or UAV (Unmanned aerial vehicle) – an aircraft piloted by remote control and/or onboard computers

Applications in Science:

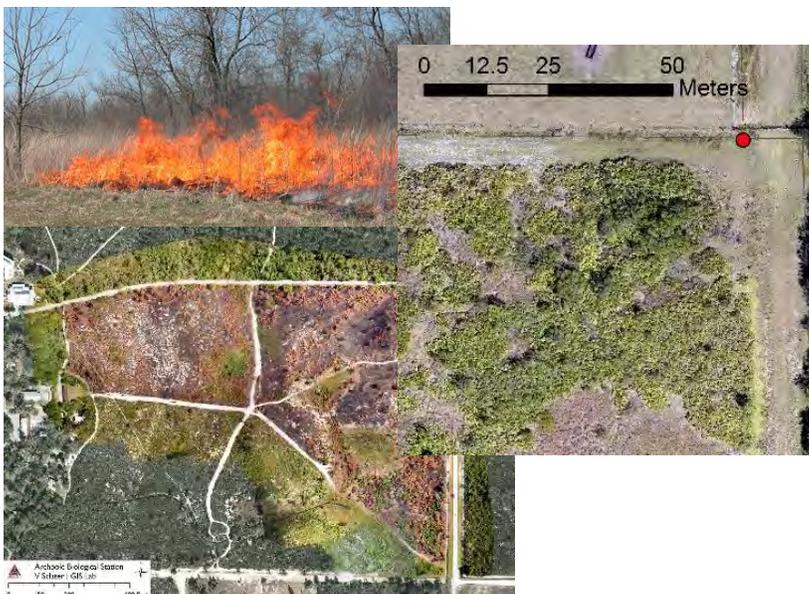
- High Resolution Mapping (2D and 3D)
- Vegetation or Habitat Monitoring
- Multispectral Imaging of Vegetation
- Damage Assessment



How the Rangeland Wildlife & Ecosystems Program uses drones:

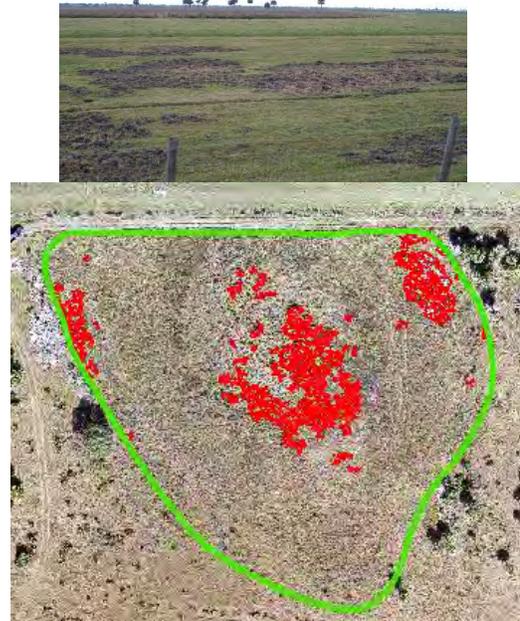
Habitat Monitoring:

- Pre and Post Burning
- Gap establishment for native forage grasses



Assessment of Feral Swine Disturbance:

- Rooting damage in wetlands and pastures

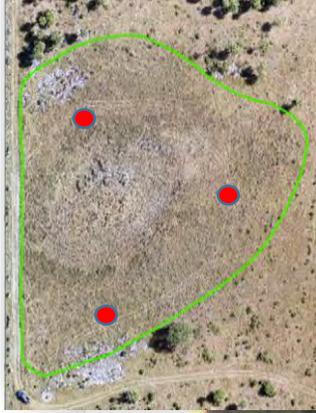


Drone Data Pipeline:

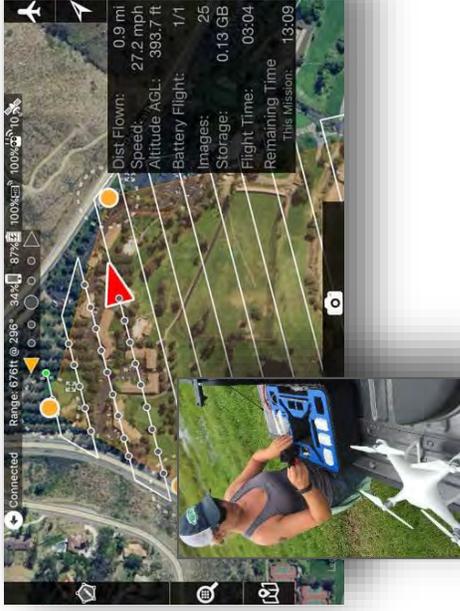
Flight Planning



Ground Control Points



Conduct Flight



Ability to repeat exact flight over time

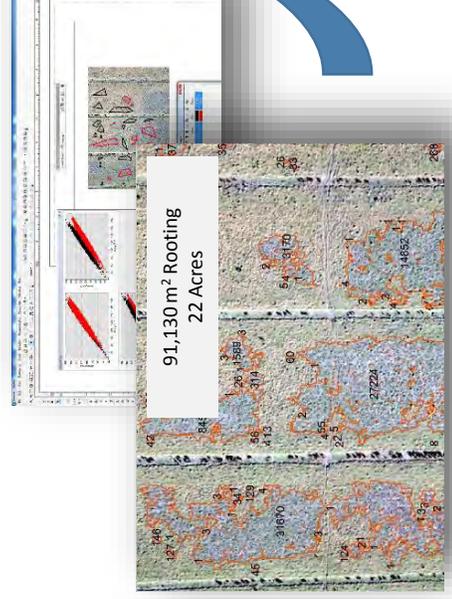
Raw Images



Create Mosaic



Conduct Analyses





Before you start

1 Good binoculars

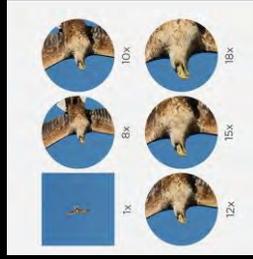
2 Field guide of region

3 Patience (birders are notorious slow walkers)



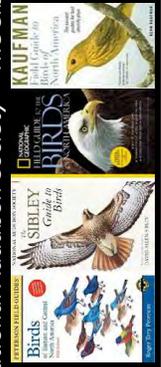
#1 Binoculars

- 8x42 or 10x42 (both good for most wildlife viewing)
- Water proof and fog proof (big issue in Florida)
- Don't buy the cheapest (not worth it)
- Good middle road binocular
 - Nikon Monarch last
 - 10 x42 model 15 \$270-\$300
 - Bushnell Legend Ultra Roof Prism \$250
- Higher end binoculars
 - >\$1000, Zeiss, Leitz, Leica, Swarovski
- Focusing binoculars?
 - Initial focus for each eye or at least the right
 - Then focus together.



#2 Field Guides

- See your packet for examples of guides and online resources
- My favorite is *National Geographic Field Guide to the Birds of North America*
 - Complete
 - decent maps of breeding, wintering areas and migration
 - good descriptions and artwork
- Second is *National Audubon Society – The Sibley Guide to Birds*



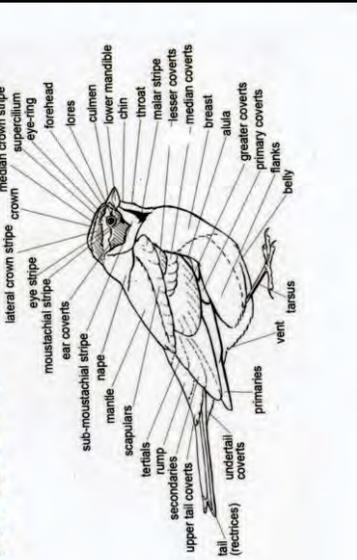
#3 Patience and practice

- Birders use all sorts sensory information to identifying birds. The two most common are
 - SIGHT
 - Size, shape, color, unique features, behavior
 - SOUND
 - Bird calls
 - Bird songs
 - Even bird eating sounds

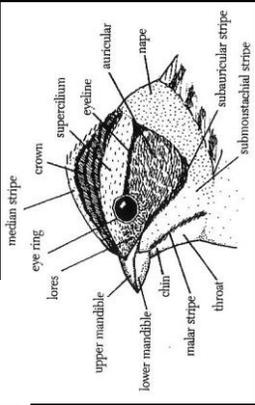
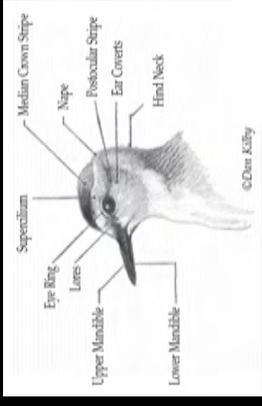
Where you are (**location**) and what surrounds your (**habitat**) will also help identify a bird. Use your *reference materials*.

The Basic Bird

BIRD TOPOGRAPHY



The importance of heads



Size?, Shape? and Color?

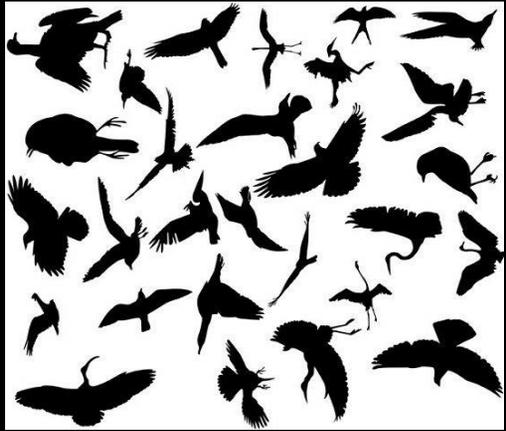


Age and Season



Silhouettes

Shape
Size
and
Form

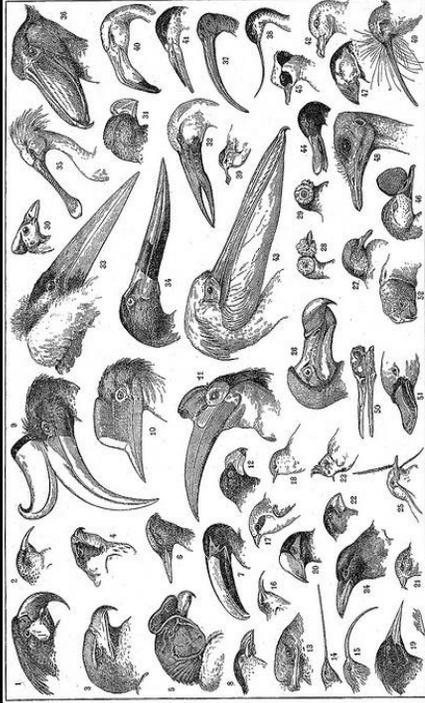


Beak size against head

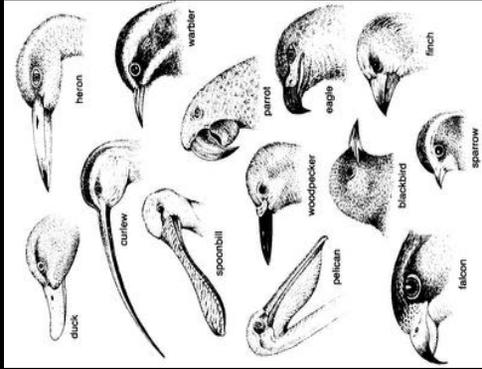
Downy Woodpecker versus Hairy Woodpecker



Beaks give you clues!



Beaks
give you
ID
Clues



Location and Habitat



- Habitats where you see birds can also help you identify them
- There are many types of forests, woodlands, grasslands, wetlands, deserts, beaches, oceans, and lakes
- Birds often associate with a particular type of habitat

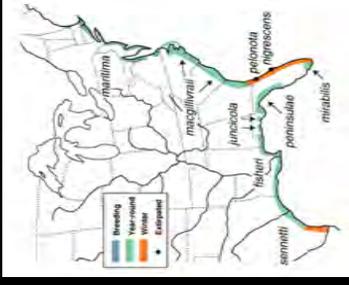
Color is amazing



Habitat and Diet Specialist - Limpkin



Habitat Specialist Seaside Sparrow



Birds of Florida

- ~ 200 species breed in Florida
- Florida is also on a major migratory route to south America
- The Florida Ornithological Society has recorded 516 bird species in the wild – native and exotic.
<http://www.fosbirds.org/official-florida-state-bird-list>
- You live in an awesome bird state!



What is our State Bird?

After you start

- # 1 Always have binoculars
- # 2 Always carry your field guide
- # 3 You get better the more you do it



Birds – An identification resource list

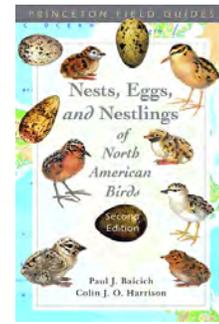
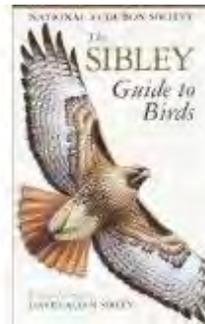
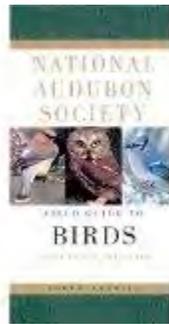
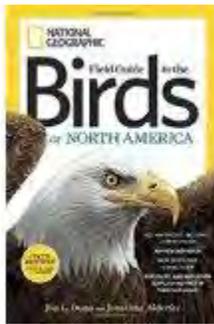
Websites

For a quick guide to pictures and distribution of birds - www.birds.cornell.edu

For another quick guide to pictures and bird calls too - www.audubon.org/bird-guide

For a comprehensive account of each species of bird in North America - <http://bna.birds.cornell.edu/bna>

Field Guides and Identification Books



- 1) Dunn, Jon. I and Aflefer, Jonathon. *National Geographic Field Guide to the Birds of North America*, 2011.
- 2) National Audubon Society, *Field Guide to North American Birds- Eastern Region*, Random House Press, 2010.
- 3) Sibley, David A. *The Sibley Guide to Birds*, National Audubon Society. 2000
- 4) Baicich, Paul J., and Colin James Oliver Harrison. *Nests, eggs, and nestlings of North American birds*. Princeton, NJ: Princeton University Press, 2005.

APPS - Several apps exist that mirror the field guide but give you an added advantage of having calls easily accessible to play.

1. iBird Pro Birding App
2. Peterson's Birds of North America
3. Sibley eGuide to the Birds of North America
4. Audubon Birding App

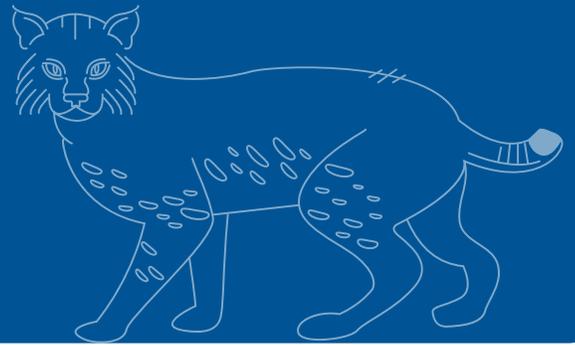
Threatened and Endangered Birds of Florida

Many queries I receive come from landowners concerned about impacting or being impacted by the management of species that are threatened or endangered. There are often specific rules, guidelines and programs that have been developed by various agencies for the protection and management of these species. To learn more here are some excellent resources -

US Fish and Wildlife Service endangered species: www.fws.gov/endangered

Florida Fish and Wildlife Conservation Commission imperiled species 21 of which are birds: www.myfwc.com/imperiledspecies

Florida Natural Areas Inventory rare species field guides and biodiversity matrix tool: www.fnai.org/fieldguides.cfm and www.fnai.org/biointro.cfm



BOBCAT

Sam Baraoidan · Raoul Boughton

#004 Rangeland Wildlife Factsheet Series

The Flourishing Feline



PHOTO BY: REED BOWMAN

Breeding	 SPRING	 SUMMER	 FALL	 WINTER	
Habitat	 GRASSLAND	 OAK HAMMOCK	 WETLAND	 FLATWOODS	 SCRUB
Status	 E ENDANGERED	 T THREATENED	 C CONCERN	 I INVASIVE	 M MIGRATORY

SCIENTIFIC NAME: *Lynx rufus floridanus*

SYNONYMS: Wildcat, bay lynx, lynx cat, pallid lynx

HABITAT: All habitats, including urban areas

PHYSICAL DESCRIPTION: Twice as large as a domestic cat with brown/tan and white fur, small black spots and a short “bobbed” tail tipped with black. Back of ears black with white spot, short snout and often a “ruff” around the neck.

WEIGHT: Ranges from 15-35 lbs, males typically larger than females

DEMOGRAPHIC RATE: 50-60 day gestation, 1-4 kittens/litter

LIFESPAN: 3-4 years in the wild. Oldest reported bobcat in the wild 16 y/old and in captivity 32 y/old.

DISPERSAL: Kittens disperse around 8 months.



PHOTO BY: SUMMER M. TRIBBLE

BIOLOGY AND BEHAVIOR: Bobcats are members of the cat family (Felidae) and are habitat generalists, meaning they will use almost all habitats, including urban areas, beaches, and some agricultural areas. They prefer areas with thick cover for hunting. They will commonly climb trees or swim in search of food, and are often found sunning and sheltering among branches. Bobcats are opportunistic carnivores and will eat whatever they can catch. Although they prefer rabbits and rodents, bobcats will also eat small reptiles, birds, feral cats, carrion, eggs, and occasionally deer or small livestock. Bobcats do most of their hunting at dawn, dusk, and through the night. Adult bobcats are solitary and males and females are only found together during the breeding season, August-March. Female bobcats are sexually mature around one year old, and males around two years. Dens are usually in hollow logs, dense vegetation, or under rocks. Only female bobcats care for the young, and they will stay with her until the next breeding season.

Did You Know?

Bobcats will cover a large kill with dirt, grass, or leaves and return to it later –called “caching.”

BOBCAT FAST FACTS

- Usually only sleep for 2-3 hours at a time
- Keen sense of hearing and vision, can see in the dark to hunt at night
- Melanistic (all black) bobcats have been sighted about a dozen times in southern Florida



NatureServe and IUCN (International Union for Conservation of Nature). 2016. Lynx rufus. <http://www.iucnredlist.org>

DISTRIBUTION: Bobcats are present in most of North America and exhibit a clinal gradient from the largest in Canada to the smallest in Mexico. Their range is expanding northward in Canada, following trends of increased forest clearing and warmer winters. Bobcats are present in all contiguous U.S. states except Delaware, where they are believed to have been extirpated. In Florida, bobcats can be found in all 67 counties, although they have not been spotted on the islands of the Florida Keys in several decades. Florida scientists have reported a recent decrease in bobcat populations. Reasons for the decline are unknown and state wildlife officials do not believe bobcat populations are currently at risk. Home range size for bobcats in rural or undeveloped areas, are around 5-6 mi² and in urban or suburban areas decrease to 1-2 mi². Male bobcats have larger home ranges than females.

Tracks



HISTORY: Between 1.8 and 3.8 million years ago, the lynxes made an evolutionary split from the rest of the big cats. The Issoire lynx is believed to be the first ancestor of the bobcat that crossed from Eurasia to North America. The first North American evidence of this ancestral lynx species was found in Texas, and dates back 2.4 to 2.5 million years. The Issoire lynx evolved into the bobcat as we know it today, between 1.8 million and 10,000 years ago.

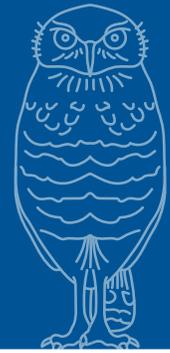


HOW LONG CAN THIS FELID FLOURISH? In a time when wild cat populations around the world are declining, many might wonder why bobcats are thriving throughout most of their range. There is no single definitive answer as the resilience of bobcats can be attributed to many factors. It may be partly due to their generalist nature using a variety of habitat and food resources. These generalist's traits allow them to adapt quickly to changes such as human population growth, increased development, and landscape alterations — trends that have had severe negative impacts on other cat species, such as the Florida panther (*Puma concolor coryi*). Bobcats are a small wild felid that require relatively small areas of habitat for a home range, allowing them to survive in many more parts of a fragmented landscape than a larger cat could. However, this adaptability and resilience is limited, and a decline in bobcats has recently been observed in Florida. Rapid development in Florida may be reaching a threshold that even bobcat are unable to persist within. Since predators are a critical component of a healthy ecosystem, it is important to monitor bobcat populations and implement conservation actions where needed. Bobcats are native to Florida and conserving and connecting tracts of suitable habitat for bobcats and their prey may help stabilize populations, and prevent bobcats from joining so many of their feline cousins on the list of threatened and endangered species.

HOW YOU CAN HELP

- Support wildlife on your property by growing native plants and areas of cover.
- Reduce urban conflicts by securing garbage cans, protecting small livestock such as chickens, and avoid leaving pet food outside.
- Avoid using poisons to kill rodents or other pests - these harmful toxins can be ingested by bobcats and other native wildlife.

More information at www.rangelandwildlife.com, <http://edis.ifas.ufl.edu>, & www.myfwc.com

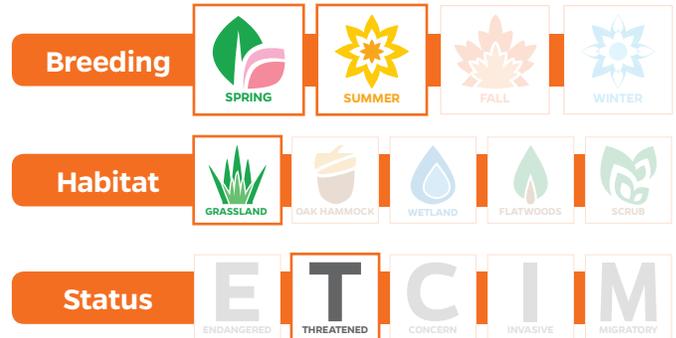


BURROWING OWL

Raoul Boughton · Julie Burford

#001 Rangeland Wildlife Factsheet Series

The Owl “hoo” Loves Rangelands



SCIENTIFIC NAME: *Athene cunicularia floridana*

HABITAT: Open habitats with short groundcover, urban areas

PHYSICAL CHARACTERISTICS: Smaller owl with long legs, bright yellow eyes and lacking ear tufts

WEIGHT: 6 ounces (0.35 lbs)

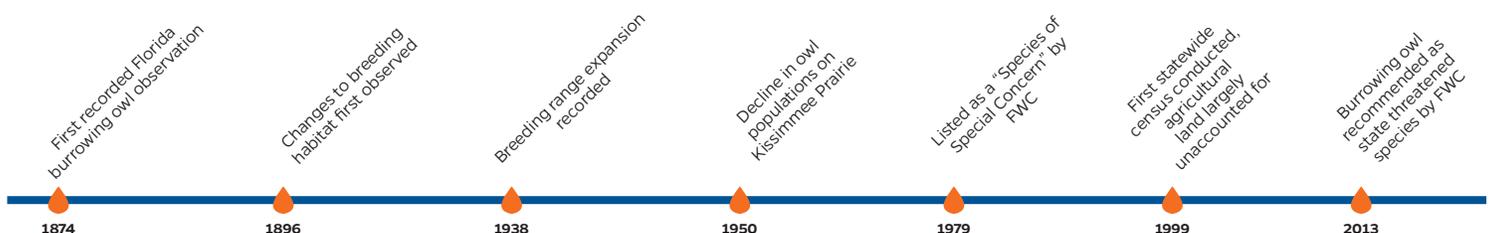
DEMOGRAPHIC RATE: 21-28 day incubation, 6-8 eggs, fledge around 12 weeks



HISTORY AND HABITAT: Owls were originally observed in the late 1800s on dry prairies in south central Florida. The low, grassy vegetation of historic dry prairies was maintained by periodic flooding and natural fires. Today few native dry prairie habitats remain due to fire suppression and conversion to human land uses. Burrowing owls have since expanded their natural breeding range and are now found mostly on agricultural fields, airports, ball fields, and residential lots.

Did You Know?

Burrowing owls often decorate their burrow openings with dung, insect parts, feathers, grass clippings, paper, or other debris.



BURROWING OWL

FAST FACTS

- Geographically distinct population in Florida
- Active during day and night
- Can hover in midair to catch food



Courtesy of FWC

DISTRIBUTION: Burrowing owls have expanded their range north and south Florida due to human induced landscape modifications. Their distribution is localized and spotty throughout peninsular Florida, with high concentrations occurring in urban SE coastal areas and Cape Coral. Small colonies have been found as far west as Eglin Air Force Base and as far south as the Dry Tortugas. Little is known about the distribution of burrowing owls on agricultural land, though owls are known to extensively utilize rangeland and other agricultural fields.

BIOLOGY AND BEHAVIOR: Burrowing owls live in single breeding pairs or in colonies consisting of two or more families. During the day, they are usually observed standing at the mouth of their burrow or on a nearby post. Florida burrowing owls typically dig their own burrow, but are also known to use gopher tortoise or armadillo burrows and structures such as manholes, sewer drains, and concrete pipes. Their breeding season is typically between February and July. Young owls emerge from the burrow at 2 weeks and stay with their parents for approximately 12 weeks. Burrowing owls primarily forage on insects, especially grasshoppers and beetles, though small lizards, frogs, snakes, birds, and rodents are also important prey items.

How You Can Help

- Install T perches near owl burrows to give owls elevated view of nest area
- Maintain low vegetation near burrow sites by mowing or trimming weeds
- Avoid heavy equipment near active burrow openings to prevent collapse
- Restrict use of pesticides that may affect owl food sources
- Keep pets away from burrow sites

Types of Burrows



Burrow under limestone outcropping



Burrow on open rangeland



Burrow along fence line



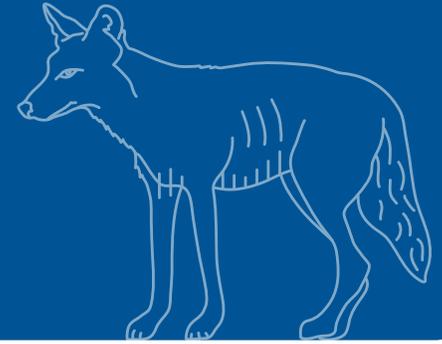
Burrow in abandoned PVC pipe



PHOTO BY RON BIELEFELD

IMPORTANCE OF RANGELAND FOR CONSERVATION: Due to the many threats and decreasing availability of vacant lots in urban areas, rangelands appear to be critical to the burrowing owl's overall conservation. The current status of owls in these areas is unknown, as researchers face difficulty accessing privately owned lands. Limited surveys may also result in population underestimating. Moderately grazed pastures provide the low stature vegetation requirements for owl breeding habitat and may be preferable to more intensively developed areas.

See more factsheets at www.rangelandwildlife.com



COYOTE

Raoul Boughton · Bethany Wight

#002 Rangeland Wildlife Factsheet Series

The Controversial Canine



SCIENTIFIC NAME: *Canis latrans*

SYNONYMS: American jackal, prairie wolf and brush wolf

HABITAT: All habitats, including urban areas

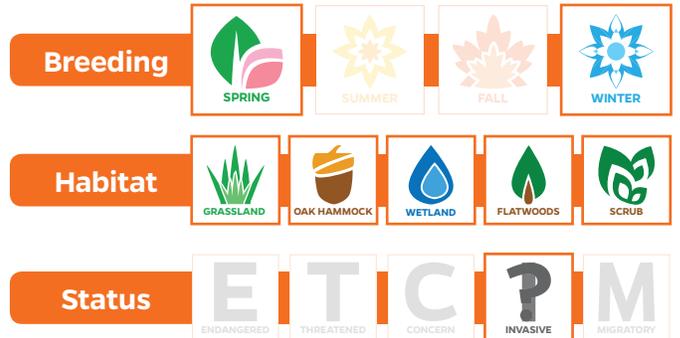
PHYSICAL CHARACTERISTICS: dog or wolf-like, mixture of browns, grays, whites and even black, large triangle-shaped ears, long slender muzzle, bushy tail

WEIGHT: average of 20-35 lbs

DEMOGRAPHIC RATE: 2 month gestation, female in heat annually, average 6 pups/litter

LIFESPAN: 5-6 years in the wild, oldest reported coyote in captivity 18-19 y/old and in the wild about 12 y/old

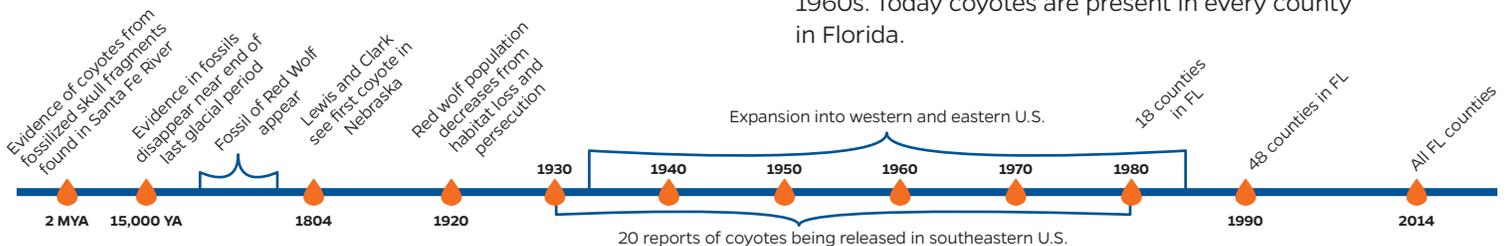
DISPERSAL: Pups may disperse from pack when 8-10 months old depending on rank and availability of food resources, however some remain with the pack or disperse after first year.



HISTORY: The earliest sign of coyotes in Florida is from fossilized skull fragments dating from the late Pliocene. Near the end of the last glacial period fossil records of a large wolf and coyote species disappeared from eastern North America. This also coincides with the period when humans started to inhabit North America and the first fossil records of the red wolf (*Canis rufus*) appear. Coyotes expanded from the Great Plains in the 1940s. Two major factors may be attributed to their expansion. The eradication of the red wolf which reduced competition pressure and human alteration of the landscape for agricultural use opened up preferred rangeland habitat used by coyotes. In Florida, reports of coyotes being released or escaping date back to the 1930s, however coyotes did not expand into Florida until around the 1960s. Today coyotes are present in every county in Florida.

Did you know?

Coyotes were originally predators of the Great Plains and expanded but have now expanded through out North America.



COYOTE FAST FACTS

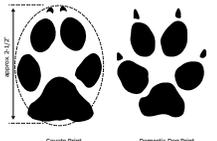
- Eastern coyotes larger, possibly due to hybridization with wolves
- Keen sense of hearing, vision and smell
- Crepuscular, meaning they are most active at dawn and dusk and nocturnal
- Can be a threat to livestock and small pets



Courtesy of The National Wildlife Federation

DISTRIBUTION: Coyotes are now present in most of North America, with their upper limit in northern Canada and Alaska and lower limit around Panama. Within the last decade, many researchers and ranchers suggest that their populations have continued to increase. Two recent studies in south-central Florida found average home range areas of 10-14 mi², while core home range areas were around 1-2 mi² and one roaming coyote was found to cover 350 mi² within 150 days.

Tracks



BIOLOGY AND BEHAVIOR: Coyotes are members of the dog family (Canidae) and are habitat generalists, meaning they will use almost all habitats, including urban areas and beaches. Coyotes are opportunistic omnivores consuming a variety of animals (small reptiles, rabbits, insects, deer, feral cats, carrion, and eggs) and plants (grasses, watermelon, berries). Coyotes may be found alone, as a breeding pair or even in small groups depending on habitat and food resources. Coyotes are social, vocalizing with yips, barks, and howls. Coyotes breed once a year in winter and are sexually mature within one year. Both parents care for the young and dens are typically found in burrows, hollow logs, or dense vegetation. There is some evidence of density dependent reproduction with smaller litter sizes as the coyote population in an area increases.



IMPACTS: There are varying perspectives on coyotes as their range continues to expand, often into urban areas. Some view coyotes as part of Florida's natural wildlife, while others view coyotes as invasive pests that are preying on livestock, pets, and wildlife. One of the greatest conflicts is coyote predation on livestock. Coyotes have been known to injure or kill sheep, goats, calves, poultry, and hogs, as well as eat agricultural crops. Coyotes typically attack the neck of an animal and signs of coyote attack include bite marks, bruises and bleeding around the head, neck and ears, as well as wounds to the hind legs and tails of livestock. Coyote tracks and droppings may not indicate an attack, only presence, and it may be that coyotes are only scavenging after death from other causes. How often coyote are truly to blame for livestock loss is an important question that researchers are currently trying to answer. Coyotes can also attack small pets especially in the urban interface. Coyotes have been suggested to compete with similar sized predator species, such as bobcats and foxes, but so far data does not support this. Coyotes have also been known to depredate ground-nesting bird eggs and sea turtle eggs. Attacks on humans are extremely rare.

HOW YOU CAN HELP:

- Learn about your local coyote control laws. Visit <http://myfwc.com>
- Protect your pets by keeping them indoors or in a fenced area.
- Reduce urban conflicts by securing garbage cans.
- Investigate methods to protect your livestock, such as guard donkeys and dogs and exclusion fencing.



PHOTO BY LESLIE GAINES AND JEFF PALMER

To learn more see these factsheets at www.rangelandwildlife.com and <http://edis.ifas.ufl.edu>

- Managing Conflicts with Wildlife: Living with Coyotes
- Interpreting the Physical Evidence of Predation on Domestic Livestock



WHITE-TAILED DEER

Connor Crank, Bethany Wight & Raoul Boughton

#003 Rangeland Wildlife Factsheet Series

Florida's Favorite Game Species



SCIENTIFIC NAME: *Odocoileus virginianus*

COMMON NAME AND TERMS: White-Tailed Deer, doe (adult female), buck (adult male), fawn (juvenile)

HABITAT: Most habitats, often along forest edges and gaps, in young forest stands, oak hammocks, grasslands, and agricultural pastures.

PHYSICAL DESCRIPTION: Reddish-brown to grey-brown, white throat and nose band, underbelly and underside of tail white, large pointed ears, tall standing up to 6ft. Juveniles spotted. Adult males annually shed and grow antlers.

WEIGHT: Average adults males 125 lbs., average adult females 95 lbs.

DEMOGRAPHIC RATE: 200 day gestation, average of 1 fawn/year in Florida.

LIFESPAN: Average 4-6 years in hunted areas and up to 10 years in non-hunted areas. Captive deer have lived for 20 years.

DISPERSAL: Average annual home range of 1 mi² for females and 2.5 mi² for yearling and adult males. Greatest dispersal is in yearling males who can travel up to 6 miles from their natal areas.

Breeding	SPRING	SUMMER	FALL	WINTER	
Habitat	GRASSLAND	OAK HAMMOCK	WETLAND	FLATWOODS	SCRUB
Status*	ENDANGERED	THREATENED	CONCERN	INVASIVE	MIGRATORY

*Florida Key Deer is an endangered sub species

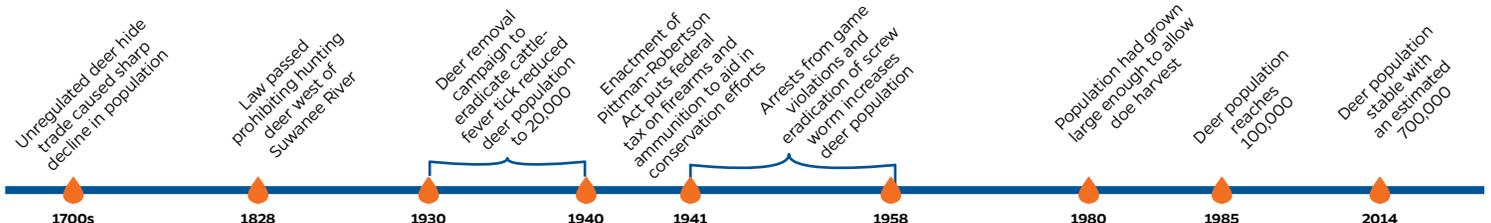
Did You Know?

Antler growth is one of the fastest known types of mammalian tissue growth, growing up to ¼ inch per day.



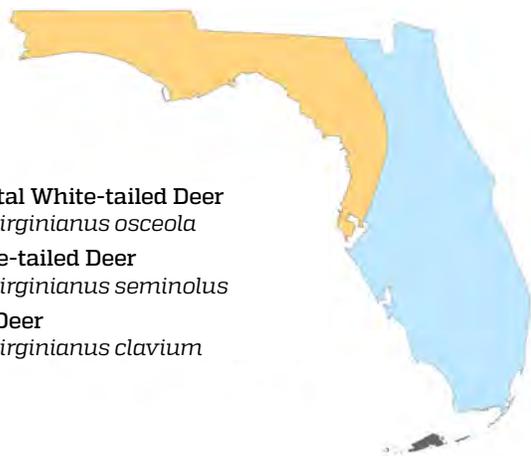
HISTORY: White-tailed deer are the most economically important game species in Florida. Deer in Florida have undergone major population

declines and increases. In the 1700s the unregulated deer hide trade and deer removal campaign caused historic populations to be reduced to 20,000. After the Pittman-Robertson Act and eradication of screw worm deer populations increased. Reintroduction of White-tailed deer by the Florida Fish and Wildlife Conservation Commission (FWC) has also helped increase deer populations. By 1985, 100,000 individuals were recorded and today an estimated stable population of 700,000 exists.



DEER FAST FACTS

- Scientific genus means “hollow tooth”
- In Florida, deer consume about 3% of their body weight, ~4 lbs a day
- Crepuscular, meaning they are most active at dawn and dusk
- Deer hunting created 8,196 jobs and generated \$48 million dollars in state and local taxes in 2011



-  Florida Coastal White-tailed Deer
Odocoileus virginianus osceola
-  Florida White-tailed Deer
Odocoileus virginianus seminolus
-  Florida Key Deer
Odocoileus virginianus clavium

DISTRIBUTION: There are 30 subspecies of white-tailed deer in the Americas, with three in Florida (see map). Species are taxonomically divided into “subspecies” when they are capable of breeding and producing fertile offspring, but do not interbreed in nature due to factors such as geographic isolation (as is the case with the Key Deer).

BIOLOGY AND BEHAVIOR: White-tailed deer are herbivores, with diets of leaves, twigs, stems, flowers, acorns, fruits, mushrooms, and aquatic plants. Similar to cattle, deer are ruminants with 4 stomachs and 65 feet of intestines to process their food. The nutrient-poor sandy soil of Florida can result in relatively low populations of deer but agricultural areas often provide high quality forage. Deer breeding season is commonly referred to as the “rut” and consists of three stages: the pre-rut, the rut, and the post-rut. Bucks typically spend one day with a female, and then move on to find another receptive doe. Male deer reach sexual maturity at 1.5 years and females first reproduce their 2nd year. Mortality is primarily due to hunting with over 120,000 deer hunted annually, but vehicle collision and sometimes disease can also be large factors.

Tracks and Scat



Pre-rut



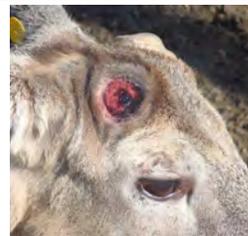
Increasing day-length and testosterone trigger antler growth covered in “velvet.”

Rut



Bucks rub antlers to remove velvet and often spar to assert dominance. Doe go into estrous.

Post-rut



Antlers are shed and new antlers start growing soon after.

PHOTO BY: STEVE DEMARIS, MSU

How You Can Help

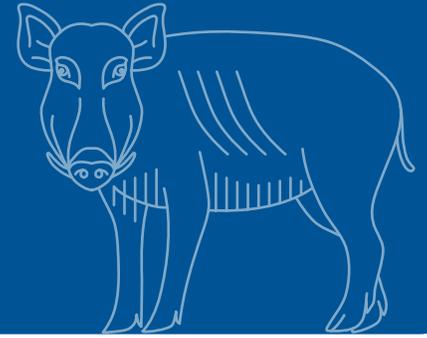
- Develop a habitat management plan to maintain stable population levels
- Use food plots to supplement deer feed and attract deer to an area

KEY DEER IN FLORIDA: Key Deer are an endangered subspecies of white-tailed deer that only exist in the Florida Keys. Their ancestors are thought to have crossed to the keys via a land bridge during the Wisconsin Glaciation. Geographic isolation on islands led to local adaptation and key deer became the smallest subspecies in North American with males weighing a mere ~65lbs and females ~55lbs. Key deer have a high salt water tolerance, low birth rates, and are more solitary. Due to hunting and habitat loss, only 25 Key Deer existed in 1955. Conservation efforts including a complete hunting ban (1939) and the establishment of National Key Deer Refuge (1967) have since allowed Key Deer populations to reach 700-800 individuals. Continued habitat loss and degradation are still major risks to the population.



PHOTO BY: KRISTIN LAJEUNESSE

See more factsheets at www.rangelandwildlife.com and www.edis.ifas.ufl.com

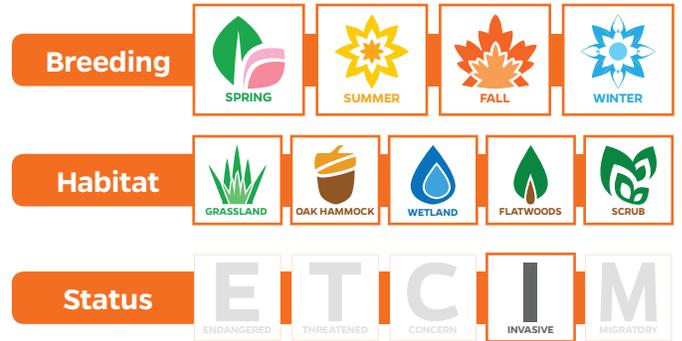


FERAL SWINE

Raoul Boughton · Bethany Wight

#001 Invasive Rangeland Vertebrate Factsheet Series

An Ecological and Agricultural Invader



SCIENTIFIC NAME: *Sus scrofa*

SYNONYMS: Wild Hog, Feral Hog, Wild Boar, Razorback, Piney Woods Rooter

HABITAT: All habitats with a water resource, especially agricultural areas and wetland/upland interface

PHYSICAL CHARACTERISTICS: Black, brown or brindled in color, juveniles striped

WEIGHT: Adults 75-250 lbs

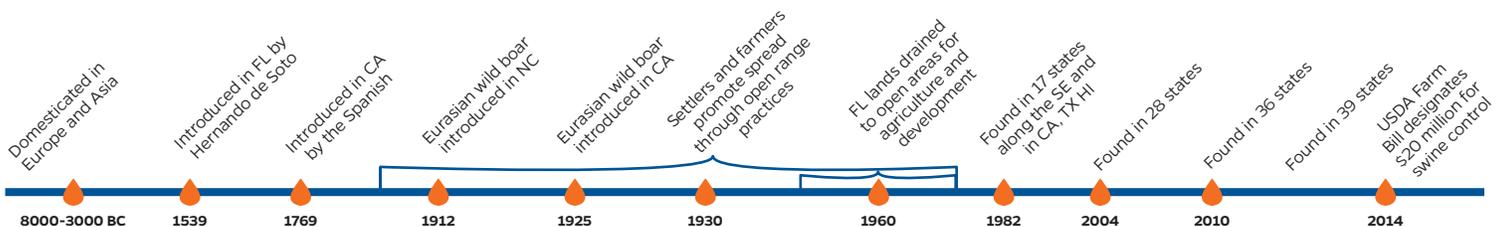
DEMOGRAPHIC RATE: 115 day gestation, able to produce 2 litter/year, 6-8 piglets/litter in the wild. Helps populations grow rapidly

LIFESPAN: Average of 1-2 years, known to live up to 9-10 years in the wild

DISPERSAL: Female and young stay together in groups called sounders. Mature males disperse, sometimes more than 100 miles. Female dispersal activities are unknown.

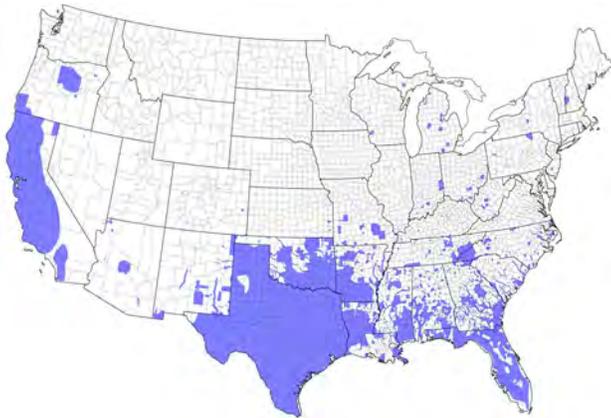


HISTORY: Feral swine are not native to the Americas and were introduced by Spanish explorers in the 1500s. In Florida, domesticated swine are thought to have first been introduced in 1539 by Hernando de Soto who settled Charlotte Harbor in Lee County. Later settlers and farmers used open range livestock practices, promoting the spread of swine. Feral swine are descendants of escaped/released domestic swine, hybrids of Eurasian wild boar x domestic swine, or wild boar in non-native habitat.



FERAL SWINE FAST FACTS

- Forage by rooting, which can negatively impact ecosystems
- No sweat glands, require water and shade to cool in hot environments
- One of the highest reproductive rate of mammals in North America
- Typically found in groups called sounders, males often solitary



Distribution of feral hogs in 2009. (Courtesy of Southeastern Cooperative Wildlife Disease Study)

DISTRIBUTION: Previously presumed to be limited to the south by harsh winters, they are now estimated to be breeding in 39 states, as far north as Michigan, North Dakota, and into Canada. The largest populations are found in Texas, California, Florida, and Hawaii. Population estimates in Florida are >500,000 which could be a great underestimate. Map courtesy of the SCWDS, University of Georgia.

Tracks



Signs of Feral Swine



Rooting along edge of wetlands common



Wallows in shady sites used often



Rubs on posts & trees likely used as scent marks



Swine tracks



Swine feces

How You Can Help

- Do not relocate or transport feral swine
- Control feral swine on your property
- Collaborate with neighbors to control large areas
- Work with you local wildlife agency

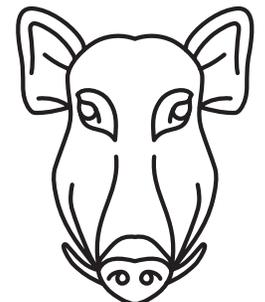
IMPACTS: The most common type of damage by feral swine is from rooting. When swine root to get food they burrow into the soil with their snouts to find roots, tubers, fungus, etc. This rooting loosens the soil, destroys native vegetation, and modifies the chemistry and nutrients of the soil. Feral swine can negatively impact not only natural ecosystems but also agricultural areas, livestock, and even residential areas. Feral swine also carry numerous diseases, some of which are transmittable to wild and domestic animals as well as humans.

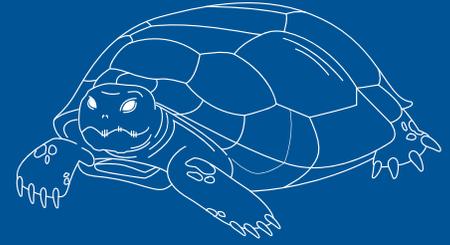


Some wild boar have large tusks.

To learn more see these factsheets at www.rangelandwildlife.com

- Feral Swine Damage Cost
- Feral Swine on Your Property
- Feral Swine Diseases
- Dealing with Damaging and Dangerous Wildlife





GOPHER TORTOISE

Bethany Wight and Raoul Boughton

#005 Rangeland Wildlife Factsheet Series

Florida's Keystone Species



SCIENTIFIC NAME: *Gopherus polyphemus*

COMMON NAME: Gopher Tortoise

HABITAT: Well-drained sandy areas with little canopy and abundant low-growing vegetation.

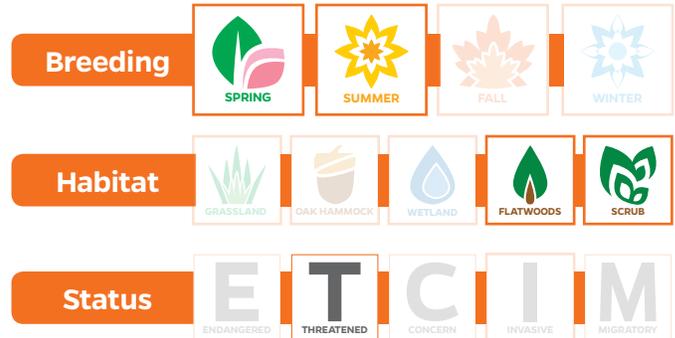
PHYSICAL DESCRIPTION: Terrestrial tortoise, adults typically 10-15 inches long with an oblong brown or gray shell. Short but strong elephant-like back legs and shovel-like front legs to help dig.

WEIGHT: 8-15 lbs.

DEMOGRAPHIC RATE: Clutch sizes range from 3-15 eggs with an average clutch size of 5-8. Eggs hatch after 80-100 days depending on temperature.

LIFESPAN: 40-80 years and possibly older in the wild, up to 100 years in captivity.

DISPERSAL: Although gopher tortoises are capable of moving long distances (> 1 km), they are generally quite sedentary and little is known about their dispersal. Home range varies with habitat, season and sex of tortoise but studies have reported annual average home ranges of 0.5-46 hectares for males and 0.1-5.6 hectares for females.



BIOLOGY AND BEHAVIOR: Gopher tortoises live in long burrows they excavate that are an average of 15 feet long and 6.5 feet deep. Each burrow has a single entrance, as wide as the length of the tortoise, which provides shelter from weather, fire, and predators. Burrows are typically easy to spot due to the sandy “apron” or mound at the entrance. Gopher tortoises are herbivores feeding on low-growing vegetation such as grasses and legumes, and other herbaceous plants. They get most of their water from plants and rarely seek out water to drink, usually only in a drought. These tortoises do not reach sexual maturity until about 10-15 years depending on resources. During the breeding season, males visit female burrows within a colony and court the resident females through shell nipping, head bobbing and rubbing pheromones from scent glands on their legs. Females lay a single clutch of eggs annually in the sand mound at the burrow entrance or in another open, sunny spot. Nest and hatchling predation is high and females may only have a successful nest every 10 years. .

Did you know?

Gopher tortoises are a keystone species, meaning other animals depend on them for survival. The burrows created by gopher tortoises are used by more than 350 other species, called commensals, including the burrowing owl, Florida mouse, gopher frog and eastern indigo snake.

GOPHER TORTOISE FAST FACTS

- Gopher tortoises feed on a variety of plants and also spread and fertilize seeds through their dung.
- Gopher tortoises cannot swim! Never relocate a tortoise to water.
- The longest recorded gopher tortoise burrow was over 47 feet long!



States and counties with Gopher Tortoise populations.

HISTORY & DISTRIBUTION:

Gopher tortoises descended from a species of land tortoise that occupied western North America about 60 million years ago. Today only five tortoise species remain and the gopher

tortoise is the only one that occurs east of the Mississippi River. Human activities and loss of habitat have eliminated the gopher tortoise from parts of its historic range in North Carolina, northern Alabama, western Louisiana and eastern Texas.

THREATS: Habitat loss resulting from human development poses the greatest risk to gopher tortoises through conversion and fragmentation of tortoise habitat. The resulting fragmented landscape reduces habitat, inhibits beneficial management with prescribed fire, disrupts dispersal of tortoises among populations, and increases the potential for negative interactions with humans, pet species (i.e., dogs), and vehicles. Gopher tortoises living on proposed development sites may be relocated to a new area (with proper permits; Contact your local FWC office), however, relocations are often unsuccessful as the tortoises rarely stay at their new site, may spread disease, and may disrupt resident tortoise populations. Several management plans by the Florida Fish and Wildlife Conservation Commission (FWC) and USDA's Natural Resource Conservation Service (NRCS) are being implemented to restore and maintain gopher tortoise habitat and populations.

TO LEARN MORE

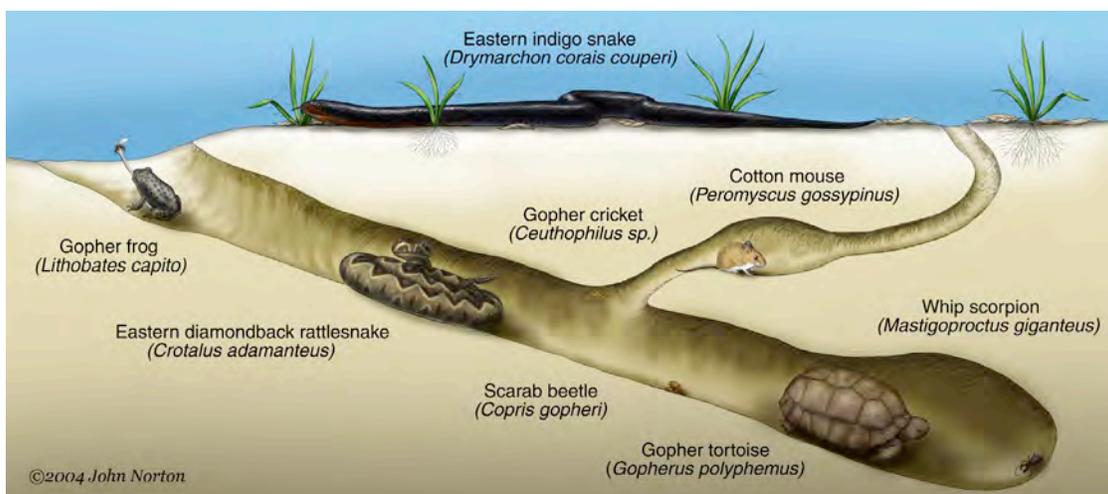
- Gopher Tortoise Council: <http://www.gophertortoise.org/about-the-tortoise/>
- Pine Ecosystem Handbook for Gopher Tortoises: https://www.fws.gov/engangered/esa-library/pdf/Handbook_Gopher_Tortoise.pdf
- FWC: <http://myfwc.com/GopherTortoise>



Tracks

HOW YOU CAN HELP

- Grow native gopher tortoise friendly plants on your property such as wiregrass, broadleaf grasses, wild peas, blueberries, and prickly pear.
- State law protects gopher tortoises and their burrows. Only permitted individuals are allowed to relocate them. Please do not harass, pursue or molest them.
- Avoid mowing, driving over or disturbing the area around a burrow and never block a burrow opening.
- Report gopher tortoise locations using this App, <http://myfwc.com/wildlifehabitats/managed/gopher-tortoise/app/>.



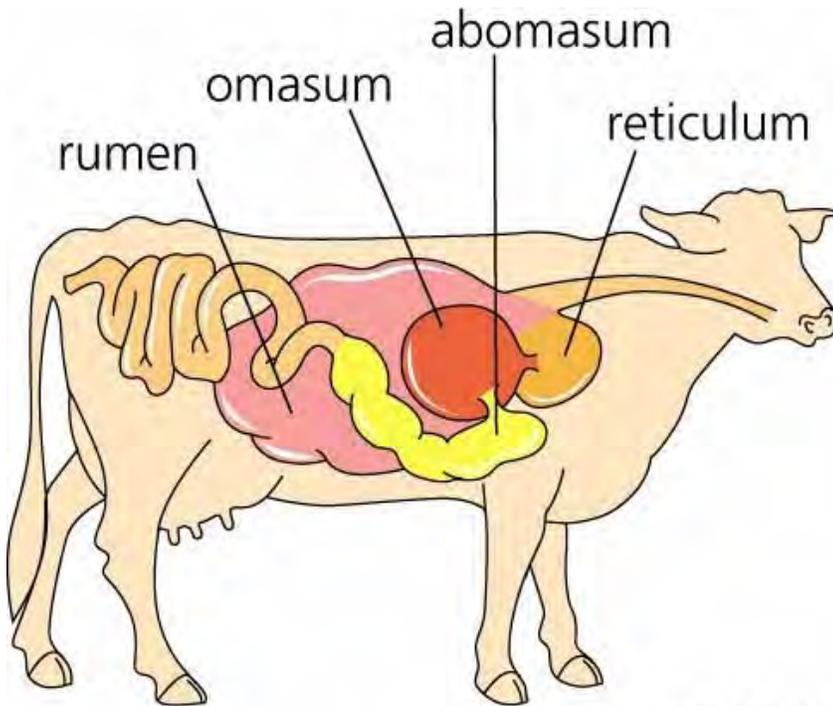
Commensals, examples of other wildlife that utilizes gopher tortoise burrows.

Gut Check

Colleen Larson, UF/IFAS Dairy RSA

Lauren Butler, UF/IFAS Livestock Agent

Cow



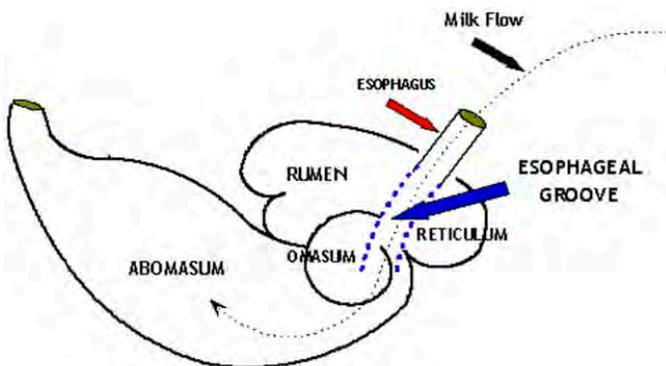
Elizabeth Morales

RUMEN: acts as a storage or holding vat for feed. It is also a fermentation vat. A microbial population in the rumen digests or ferments feed eaten by the animal. Conditions within the rumen favor the growth of microbes. The rumen absorbs most of the volatile fatty acids produced from fermentation of feedstuffs by rumen microbes. Absorption of volatile fatty acids and some other products of digestion is enhanced by a good blood supply to the walls of the rumen. Tiny projections called papillae increase the surface area and the absorption capacity of the rumen.

RETICULUM: is a pouch-like structure in the forward area of the body cavity. The tissues are arranged in a network resembling a honeycomb. A small fold of tissue lies between the reticulum and the rumen, but the two are not actually separate compartments. Collectively they are called the rumino-reticulum. Heavy or dense feed and metal objects eaten by the cow drop into this compartment. The reticulum lies close to the heart. Nails and other sharp objects may work into the tissue and cause "hardware disease." If not prevented by a magnet or corrected by surgery, infection may occur and the animal may die.

OMASUM: globe-shaped structure (also called the "manyplies") contains leaves of tissue (like pages in a book). The omasum absorbs water and other substances from digestive contents. Feed material (ingesta) between the leaves will be drier than that found in the other compartments.

Calf



RUMEN: only compartment (also called the true stomach) with a glandular lining. Hydrochloric acid and digestive enzymes, needed for the breakdown of feeds, are secreted into the abomasum. The abomasum is comparable to the stomach of the non-ruminant.

source: <https://www.extension.umn.edu/agriculture/dairy/>

What can Rotational Grazing do for my Farm?

Chris Prevatt, State Specialized Agent, RCREC, Ona

JK Yarborough, Agriculture/Natural Resources Extension Agent, Orange County



Rotational grazing is defined as a grazing method that utilizes repeating periods of grazing and rest among two or more paddocks or pastures. Rotational Grazing, also called prescribed or managed grazing, is a management-intensive system of raising livestock on subdivided pastures called paddocks. Livestock are regularly rotated to fresh paddocks at the right time to prevent overgrazing and optimize grass growth. Rotational grazing doubles as a system of grassland management, providing exceptional erosion and runoff control on uplands as well as stream corridors. It offers a productive alternative for marginal, erosion-prone or flood-prone cropland and other environmentally sensitive land, including overgrazed pastures. Rotational grazing also provides built-in manure management. Manure on healthy, well-managed grassland decomposes into the soil rather than running off. Rotating livestock from paddock to paddock allows time for manure to be incorporated into the soil. The manure helps maintain soil fertility for new grass growth, eliminating the need to store, process, haul or spread manure as a nutrient.

One key element of this style of grazing is that each grazed area must contain all elements needed for the animals (water source, shade). Having fixed feeding or watering stations defeats the rotational aspect, leading to degradation of the ground around the water supply. Rotational grazing requires skillful decisions and close monitoring of its consequences. Modern electric fencing and innovative water-delivery devices are important tools. Feed costs decline and animal health improves when animals harvest their own feed in a well-managed rotational grazing system. Rotational grazing does offer substantial benefits to cattle producers. Some of these benefits include improved animal productivity, increased plant persistence, conservation of environmental resources, and improved animal temperament.



Forages are often inefficiently utilized when pastures are continuously stocked (Andre, 2003). Many times cattle will only utilize 40-60% of the forage in a pasture with the rest either refused or wasted. There are many reasons for this waste. Cattle will heavily graze areas close to shade or water and ignore more distant areas. Animals also prefer young, tender, and leafy portions of forages and refuse stemmy mature material when allowed a choice. When there is an excessive amount of forage present, cattle frequently return to grazed areas to utilize fresh regrowth and refuse a large amount of previously ungrazed forage because it is too tough. It is certainly possible to increase stocking rate and decrease hay and fertilizer inputs using rotational stocking. Stocking rate increases of 35-60% have been reported in the scientific literature. However, as a general rule, stocking rates can be increased by 10-25% over several years as your pastures and forage management skills improve. There are situations where rotational stocking is not particularly helpful from an animal performance perspective. Forcing cattle to eat forage to a predetermined height eliminates their ability to select high quality leaves and often reduces individual animal performance (daily gain per head). This is particularly true when animals with high nutrient requirements like stocker cattle or replacement heifers are rotationally grazed on bermudagrass or bahiagrass. Remember that although individual animal performance is reduced, it is possible to increase stocking rate resulting in higher gain per acre. For producers grazing animals with lower nutrient requirements, like mature cows, this can be a great advantage. While increased animal production is often what sells rotational stocking to producers, plant performance is also improved. Many plants respond well to short grazing and long rest periods. Rest periods allow plants to produce new leaves which collect energy, transform it into sugars, and store these sugars so that more leaves can be produced following the next grazing cycle. Not only is regrowth potential improved, but root depth and stand life are improved as well.

Body Condition Score (BSC) System

Part 2

South Florida Beef-Forage Program



Range Cattle Research & Education Center



UF UNIVERSITY of
FLORIDA

Overview of BCS Project

Part 1 = Importance of Body Condition Score (BCS)

- Impact on fertility and profitability

Part 2 = BCS system

- Test your knowledge
- Tips for evaluating cow BCS
- Re-evaluate your knowledge

Please visit for more details:

Range Cattle REC, Ona FL

South Florida Beef Program

UF Electronic Data Information Source

rcrec-ona.ifas.ufl.edu

sfbfp.ifas.ufl.edu

edis.ifas.ufl.edu

What is BCS?

- Estimated amount of fat of each animal.

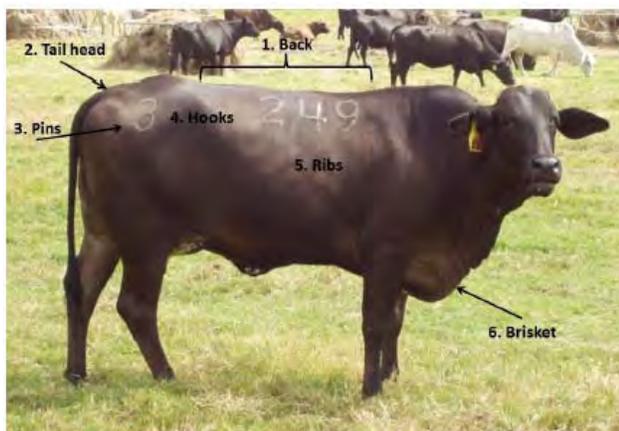
Table 1: Percent Body Fat Associated With Body Condition Scores

BCS	% Empty Body Fat
1	3.8
2	7.5
3	11.3
4	15.1
5	18.9
6	22.6
7	26.4
8	30.2
9	33.9

Nutrient Requirements of Beef Cattle, 7th Revised Edition, 1996. National Academy Press, Washington, DC

Source = <http://edis.ifas.ufl.edu/an319>

Where to look?



1. Back
2. Tail head
3. Pins
4. Hooks
5. Ribs
6. Brisket

Figure 1. Six locations used to assess cow body condition score.
Credits: Matt Hersom, UF/IFAS

Source = <http://edis.ifas.ufl.edu/an319>

BCS	% Body Fat ^a	Detailed Description ^b
Thin		
1	3.77	Clearly defined bone structure of shoulder, ribs, back, hooks and pins easily visible. Little muscle tissue or fat present.
2	7.54	Small amount of muscling in the hindquarters. Fat is present, but not abundant. Space between spinous process is easily seen.
3	11.30	Fat begins to cover loin, back and foreribs. Upper skeletal structures visible. Spinous process is easily identified.
Borderline		
4	15.07	Foreribs becoming less noticeable. The transverse spinous process can be identified by palpation. Fat and muscle tissue not abundant, but increasing in fullness.
Optimum		
5	18.89	Ribs are visible only when the animal has been shrunk. Processes not visible. Each side of the tail head is filled, but not mounded.
6	22.61	Ribs not noticeable to the eye. Muscling in hindquarters plump and full. Fat around tail head and covering the foreribs.
7	26.38	Spinous process can only be felt with firm pressure. Fat cover in abundance on either side of tail head.
Fat		
8	30.15	Animal smooth and blocky appearance; bone structure difficult to identify. Fat cover is abundant.
9	33.91	Structures difficult to identify. Fat cover is excessive and mobility may be impaired.

^a (Source: NRC, 2000)

^b (Adapted from: Herd and Sprott, 1986)

http://www.cowbcs.info/pdf/BCS_Update.pdf

BCS 2 Lacks fat deposits, but displays some muscling in the lower hindquarters. The spinous processes feel sharp to touch and are easily seen with space between them. Entire rib cage is visible.
Expected pregnancy rates = less than 30%.



BCS 3 Backbone highly visible with noticeable fat cover over the foreribs. Processes of the spine can be individually identified by touch. **Expected pregnancy rates = 50%.**

Cow # 1



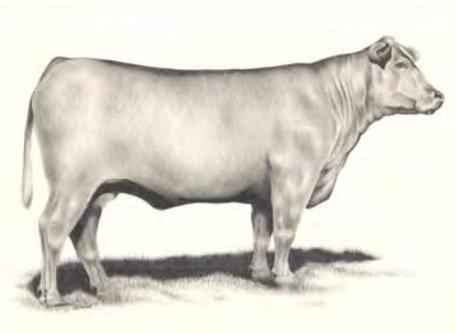
BCS 4 Foreribs not noticeable; 12th and 13th ribs still noticeable to the eye. Transverse spinous processes can be identified only by palpation to feel rounded rather than sharp. Full but straightness of muscling in the hindquarters. **Expected pregnancy rates = 50 to 75%.**



BCS 5 12th and 13th ribs not visible to the eye. Transverse spinous processes can only be felt with firm pressure to feel rounded – not noticeable to the eye. Spaces between the processes not visible. Areas on each side of the tail head are fairly well filled but not mounded. **Expected pregnancy rates = 75 to 90%.**



BCS 6 Ribs fully covered, not noticeable to the eye. Hindquarters plump and full. Noticeable sponginess to covering of foreribs. Firm pressure required to feel transverse processes. **Expected pregnancy rates = 90% or higher.**



BCS 7 Animal taking on a smooth, blocky appearance; bone structure disappearing from sight. Fat cover thick and spongy with patchiness likely.

Expected pregnancy rates = 90% or higher. **Calving problems can occur**



BCS 2.0



BCS 3.0



BCS 4.0



BCS 5.0



BCS 6.0



BCS 7.0

Thank you !



Please contact us for any questions

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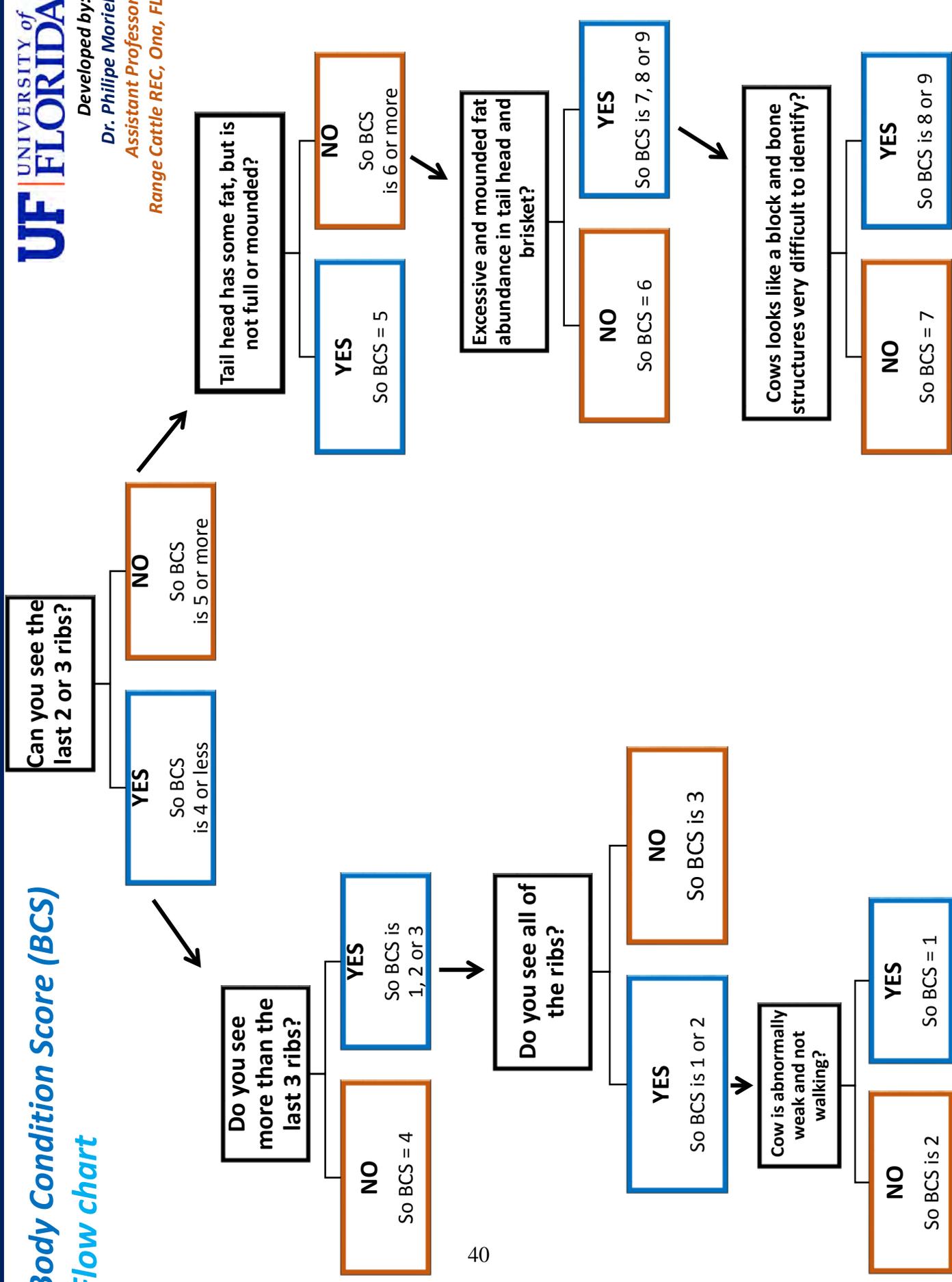
Lindsey Wiggins, Livestock Agent - Multi County

Hendry County Cooperative Extension Service

Phone: (863) 674-4092

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Body Condition Score (BCS) Flow chart



Forage Testing¹

J. M. Vendramini, M. S. Silveira, J. D. Arthington, and A. R. Blount²

Why Test Forage?

Forage testing provides useful information about the nutritive value of forage. This information can be used to adjust the amount and composition of nutritional supplements offered to livestock consuming forage. The correct adjustments can reduce costs of forage production and optimize the amount of nutrients imported to the property.

Where to Send Forage Samples and What Testing Results Will Be Provided

The UF/IFAS Forage Extension Laboratory is located at the Range Cattle Research and Education Center in Ona, Florida. The laboratory provides forage testing for Florida's livestock producers and forage producers. Results of the tests include crude protein (CP) and total digestible nutrients (TDN).

Mail samples to Forage Extension Laboratory, UF/IFAS, Range Cattle REC, 3401 Experiment Station, Ona, FL, 33865.

Beyond understanding the nutrient quality of your forage, it is also valuable to understand how your forage samples compare with other such samples submitted to

the laboratory. On an annual basis, the Forage Extension Laboratory publishes the average forage nutritive values by forage species (Table 1).

Nutritive-Value Parameters and Definitions

The nutritive-value parameters reported by the Forage Extension Laboratory are as follows:

1) Dry matter (DM): DM refers to the portion of the forage after water is excluded. All nutritive-value parameters are reported on a “dry matter basis,” thus results of samples with different DM concentrations can be compared. Dry matter concentration is important for conserved forage — such as hay, haylage, and silage — because this measure indicates how the conservation process may impact forage nutritive value. Dry matter concentration for hay should be approximately 85%–92%, haylage 40%–60%, and silage 30%–40%.

2) Crude protein (CP): CP is the nitrogen and amino acids in feeds. An estimate of forage total crude protein is obtained by multiplying total nitrogen concentration by a constant of 6.25. Adequate CP concentrations in the forage are dependent on forage species and animal requirements. For more information, see EDIS Publication AN190, *Basic*

1. This document is SS-AGR-63, one of a series of the *Florida Forage Handbook*, Agronomy Department, UF/IFAS Extension. Original publication date April 2001. Revised June 2015. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. J. M. Vendramini, associate professor, Agronomy Department, Range Cattle Research and Education Center, Ona, FL; M. S. Silveira, associate professor, Soil and Water Science Department, Range Cattle REC; J. D. Arthington, professor, Agronomy Department, and director, Range Cattle REC; and A. R. Blount, professor, Agronomy Department, North Florida REC, Marianna, FL; UF/IFAS Extension, Gainesville, FL 32611.

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Nutrient Requirements of Beef Cows (<http://edis.ifas.ufl.edu/an190>).

3) Total digestible nutrients (TDN): TDN represents the energy concentration in the forage, the sum of digestible fiber, starch, sugars, protein, and fat in the forage. Energy is the nutrient required by cattle in the greatest amount and usually accounts for the largest proportion of feed costs.

4) Neutral detergent fiber (NDF): NDF represents plant cell wall components (hemicelluloses, cellulose, lignin), which are more or less degradable, depending on the stage of maturity and degree of lignification of the forage. In general, as NDF increases, voluntary forage intake is reduced.

5) Acid detergent fiber (ADF): The ADF component of forage is determined when either the NDF residue or an intact forage sample is processed in a detergent solution primarily containing sulfuric acid. The remaining fiber residue, mostly cellulose and lignin, is called ADF. In general, as ADF increases, forage digestibility is reduced.

How to Collect a Sample

Properly collecting and identifying a sample is very important. A sampling device or tool is needed for collecting hay samples. Several commercial types are available. These tools usually consist of a tube — with a cutting edge on one end and a shank on the other — that is fastened in the chuck of an electric drill or hand brace. The sampler is driven into the end of a rectangular bale or the rounded side of the round bale. Collect a single core sample from each of 12 bales for a particular lot of hay. To ensure the sample is representative, combine the 12 cores into one sample. The outer layer of weathered round bales should be pulled away before sampling. Each hay cutting, type of hay, etc., should be sampled and analyzed separately. Each hay cutting or lot should be identified and stored separately.

Silage samples can be collected from the face of a bunker silo as it is being fed and from the unloader of an upright silo. Bagged silage can be sampled by cutting small slits along the side of the bag and penetrating the hay sampler to collect the material. Producers must reseal the slit with waterproof tape after collection.

Collect silage from five or six places along the bag, mix well, and extract a single sample to send to the laboratory. Immediately place the sample in a plastic bag and seal it. If the sample is not mailed right away, place the sample in a refrigerator or freezer.

Pasture samples can be collected and analyzed by plucking the forage with your fingers at the height the animals are grazing it. However, keep in mind that, when adequate pasture forage is available, cattle may select forage with a better nutritive value than the forage sampled by hand plucking. One practical example of selection can be found in limpgrass pastures with good forage availability. In this example, cattle will typically select leaves that have greater nutritive value than hand-plucked samples collected with leaves and stems. In this case, forage testing results may suggest that cattle would respond to protein supplementation. However, in fact, the animals are already consuming adequate amounts of protein from forage selection and may not respond to supplementation.

Scissors or some other cutting device also can be used. If possible, these samples should be dried before sending to the laboratory. If drying is not possible, mail the sample immediately after it is harvested. Your results are only as good as your sample!

Additional Information and Testing Procedures

Nutritive value results (Table 1) are reported by forage species. Forage species not included in this publication were not received by the laboratory in sufficient numbers to be included in this annual report. Crude protein and TDN were analyzed in all samples. Dry matter (DM), NDF, and ADF were analyzed in selected samples submitted by dairy producers participating in the Southeast Dairy, Inc., Check-Off Program.

The UF/IFAS Forage Extension Laboratory sample processing and analyses are as follows:

- Forage samples are dried at 55°C in a forced-air oven for DM determination.
- Total digestible nutrients (TDN) are estimated using the “in vitro” dry matter digestibility (IVDDM) procedure described by Goering and Van Soest (1970). (USDA-ARS Agric. Handb. 379. U.S. Gov. Print. Office, Washington, DC). modified for the Ankom Daisy II In Vitro Digester (Ankom Technol. Corp., Fairport, NY).
- Crude protein was calculated by multiplying nitrogen concentration by 6.25.
- Nitrogen is determined by combustion using the Flash EA 1112 Series (Thermo Electron Corporation, Waltham, MA).

- Neutral detergent fiber (NDF) and acid detergent fiber (ADF) are analyzed using an Ankom 2000 Fiber Analyzer (Ankom Technology Corp., Fairport, NY).

Many laboratories provide forage testing results based on the NIRS procedure. The NIRS procedure is often valid, depending upon the set of forage samples originally used to establish the procedure's equations. In general, wet chemistry procedures are more accurate.

If you do not know how to interpret the results, contact your County Agricultural Extension Office, or the UF/IFAS Forage Extension Laboratory at jv@ufl.edu.

The authors sincerely thank the Dairy Check-Off Program for sponsoring forage testing for the Southeast Dairy, Inc. producer samples.

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Goering, H.K., and P.J. Van Soest. 1970. "Forage fiber analysis (apparatus, reagents, procedures, and some applications)." *USDA Agric. Handb.* 379. U.S. Gov. Print. Office, Washington, DC.

Hersom, Matt. 2007. *Basic Nutrient Requirements of Beef Cows*. Gainesville: University of Florida Institute of Food and Agricultural Sciences. <http://edis.ifas.ufl.edu/an190>.

Table 1. Dry matter (DM), crude protein (CP), total digestible nutrients (TDN), acid detergent fiber (ADF), and neutral detergent fiber (NDF) of forage samples submitted to the Forage Extension Laboratory at the Range Cattle Research and Education Center – Ona, FL (October 2006 to December 2014)

Forage Species	Number of Samples	CP	TDN	ADF	NDF
Bahiagrass ^a	387	6.9 ± 3.0	51 ± 3	--	--
Bermudagrass	792	10.7 ± 3.1	52 ± 4	41 ± 3	74 ± 3
Stargrass	220	8.7 ± 3.8	51 ± 5	47 ± 9	70 ± 15
Limpograss	478	4.3 ± 3.0	54 ± 9	41 ± 4	70 ± 6
Corn Silage	87	8.0 ± 2.0	78 ± 8	30 ± 2	43 ± 8

^aADF and NDF analysis performed only on samples submitted by dairy producers. Bahiagrass was not analyzed for these nutrient constituents.

Does your cattle's diet have what it takes?

UF/IFAS Range Cattle Research and Education Center

2018 Youth Field Day

June 7, 2018

Juliana Ranches



Personal background

- Originally from Brazil
- Range Cattle Research and Education Center – Internship and Masters with Dr. John Arthington
- Master Thesis: Effects of selenium biofortification of hay fields on measures of selenium status in cows and calves consuming these forages
- Currently Ph.D. student – Selenium and copper metabolism of *Bos Indicus* and *Bos Taurus*
- Future: Professor

2

Cobalt deficiency



Copper deficiency



Selenium deficiency



Phosphorous / Vitamin D deficiency



Zinc / Vitamin C deficiency



Iodine deficiency

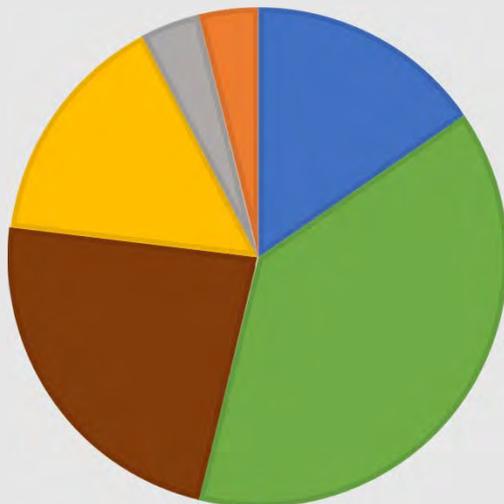


What is going on?



Nutrient Requirements

■ Water ■ Carbohydrates ■ Proteins ■ Lipids ■ Minerals ■ Vitamins



- **Carbohydrates:** The main function of carbohydrate is to provide energy to fuel the body. This nutrient is found in the starchy components of grain, and plant tissue is an excellent source of energy through carbohydrates for ruminants.
- **Proteins:** is an integral nutrient for tissue growth and repair, as well as, support for important physiological functions such as reproduction and immunity. In many cases, high protein grain byproducts contribute to both the energy and protein value of a diet.
- **Lipids:** essential for the efficient absorption of fat-soluble vitamins, as well as, the production of hormones. Fats and oils are the most common sources of lipids in animal diets
- **Vitamins and Minerals:** area of nutrition is often considered the micronutrient section. Vitamin and mineral nutrition is essential to optimize all physiological functions, such as: reproduction, growth, immunity, and endurance.

Nutrient Requirements

Nutrient	Cattle	Humans
Carbohydrate		
Protein		
Lipids		
Minerals		
Vitamins		

<p>Forages</p> 	<p>Raisins</p> 
<p>Grains byproducts</p> 	<p>Corn</p> 
<p>Fats & Oils</p> 	<p>Chocolates</p> 
	<p>Nuts</p> 

Vitamins and Minerals

Although **Vitamins and minerals** are required in very small amounts (**grams or milligrams**) they are very important for all physiological functions, such as: **reproduction, growth, immunity, and endurance.**

Fat Soluble	Water Soluble	Macro Minerals	Micro/Trace Minerals
Vitamin A	Vitamin B	Calcium	Zinc
Vitamin D	Vitamin C	Phosphorous	Iron
Vitamin E		Potassium	Selenium
Vitamin K		Magnesium	Manganese
<i>Can be stored within the body. Fuel for metabolic functions.</i>	<i>Are not readily stored, have to be consumed to avoid deficiency.</i>	<i>Greater concentration required daily.</i>	<i>Small amounts required daily.</i>

Nutrient Requirements

Now that we learned what the **required nutrients** are in a diet, let's take a look to what Daisy is eating...



What's is she eating?

Grazes "Jiggs" Bermudagrass.
Receives daily 3 lb of Bulk Feed.
Daisy weighs 1000 lb and is pregnant.

Cattle usually eats **daily 2.5% of their body weight.**
How much is Daisy eating?

$$1000 \text{ lb} \times 0.025 = 25 \text{ lb}$$

So Daisy is eating 25lb of feed daily, which is **22 lb of forage** and **3 lb grain.**

7

Nutrient Requirements

Daisy is eating 25lb of feed daily, which is **22 lb of forage** and **3 lb grain.**

Is she getting all the minerals and vitamins she needs?

22 lb of forage = 10 kg
3 lb of grain = 1.4 kg } **11.4 kg DMI**

Zinc -> 11.4 kg x 30 mg = 342 mg of Zn daily.

10 kg x 50 mg = 500 mg of Zn
1.4 kg x 45 mg = 63 mg of Zn } **563 mg of Zn daily**

Selenium -> 11.4 kg x 0.10 mg = 1.14 mg of Se daily.

10 kg x 0.03 = 0.3 mg of Se
1.4 kg x 0.22 = 0.3 mg of Se } **0.6 mg of Se daily**

	Requirement	Forage	Bulk Feed
Macro Minerals			
Calcium, %	15.4 mg/kg BW	0.37	0.88
Phosphorous, %	16 mg/kg BW	0.29	0.54
Magnesium, %	0.20 %	0.24	0.28
Potassium, %	0.60%	1.26	1.51
Micro Minerals			
Iron, PPM	50 mg/kg	89	162
Zinc, PPM	30 mg/kg	50	45
Copper, PPM	10 mg/kg	10	8
Manganese, PPM	20 mg/kg	56	23
Selenium, PPM	0.10 mg/kg	0.03	0.22

8

Nutrient Requirements

Daisy is not getting all the Se she needs....

Selenium -> $11.4 \text{ kg} \times 0.10 \text{ mg} = 1.14 \text{ mg of Se daily.}$

$10 \text{ kg} \times 0.03 = 0.3 \text{ mg of Se}$
 $1.4 \text{ kg} \times 0.22 = 0.3 \text{ mg of Se}$ } **0.6 mg of Se daily**

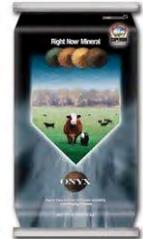
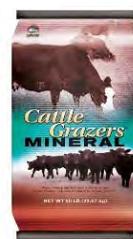
How do we solve this problem?



Nutrient Requirements



We can supplement our cows with mineral supplements!



Thank you!



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