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Winter 2015

## Cracker Coyotes: First Spatial Data

Dr. Raoul Boughton

During November and December the Rangeland Ecosystem wildlife team caught and GPS collared 15 coyotes to help understand the patterns of movement and activity during peak calving season. Three ranchers are supporting this effort through access to their properties: Cary Lightsey of Lightsey Cattle Company, Gene Lollis of MacArthur Agro-Ecology Research Center and Buck-Island Ranch, and Jim Strickland at Black Beards Ranch. The study would not have been possible without the technical and equipment support of Dr Stewart Breck, Dr Michael Avery and Eric Tillman of the USDA National Wildlife Research Center, trapper Ralph Pfister of the Adams Ranch, and my research assistant Bethany Wight. Ongoing monitoring of GPS coyotes is being conducted by many collaborators including my three graduate students, Wesley Anderson, Connor Crank, Ke Zhang; James McWhorter Highlands county extension; and naturalists and film makers Jeff Palmer and Leslie Gaines.

Once captured, coyotes must be secured with muzzle and hobbled to keep researcher and coyote free of injury during the workup stage, when we apply a GPS collar and collect samples (Fig.1). Coyotes are then released back into the wild and patterns of activity recorded by taken GPS fixes every 30mins and storing this location in the collar devices secured around their neck. Collars must be retrieved to gain access to this data and our team monitors a VHF signal with a Yagi antenna (Fig. 2) for a switch to a mortality signal when the collar/coyote becomes completely stationary for a long time (>4hrs). While monitoring on Black Beards a mortality



Figure 1. Dr. Boughton securing a coyote from trap and attaching a GPS collar and taking samples.

signal was identified and signal tracked until a stationary GPS collar with a dead coyote found. The collar had been on the coyote for 19 days in which we collected more than 800 exact locations of where the coyote had been. The area used by this coyote during that time was calculated as 1790 acres with daily movements consisting anywhere from

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UF IFAS Range Cattle Research  
and Education Center



a few miles to the longest 24hr movement from midnight to midnight being 12.2 miles (Fig. 3). These estimates will likely become larger as we track coyotes patterns of movements for months rather than days.

During May the remaining 14 GPS collars will be collected from coyotes and we will be able to assess their spatial behavior and temporal activity patterns during peak calving season compared to later in March and April when calving has decreased on these ranchers. We will analyze the collected data to answer questions such as;

- 1) What is the length of time coyote spend in pastures with calving cattle?
- 2) How often do they return to calving herds?
- 3) How far away are coyote diurnal rest areas?
- 4) What are the home ranges of coyotes during this period?
- 5) Do coyotes shift their spatial and temporal activity when calving season has ended?
- 6) How often should we suspect coyotes to be responsible for calf deaths?

Stay tuned for more information to come shortly and if you wish to see some of the results of the recent coyote impact survey please check out our February article in the Florida Cattleman's Livestock Journal. [Click here to view the February 2014 Ona Report.](#)



Figure 2. Bethany Wight and Ke Zhang tracking coyotes early in the morning, checking for mortality signals.

[Visit http://www.rangelandwildlife.com](http://www.rangelandwildlife.com) for more information.

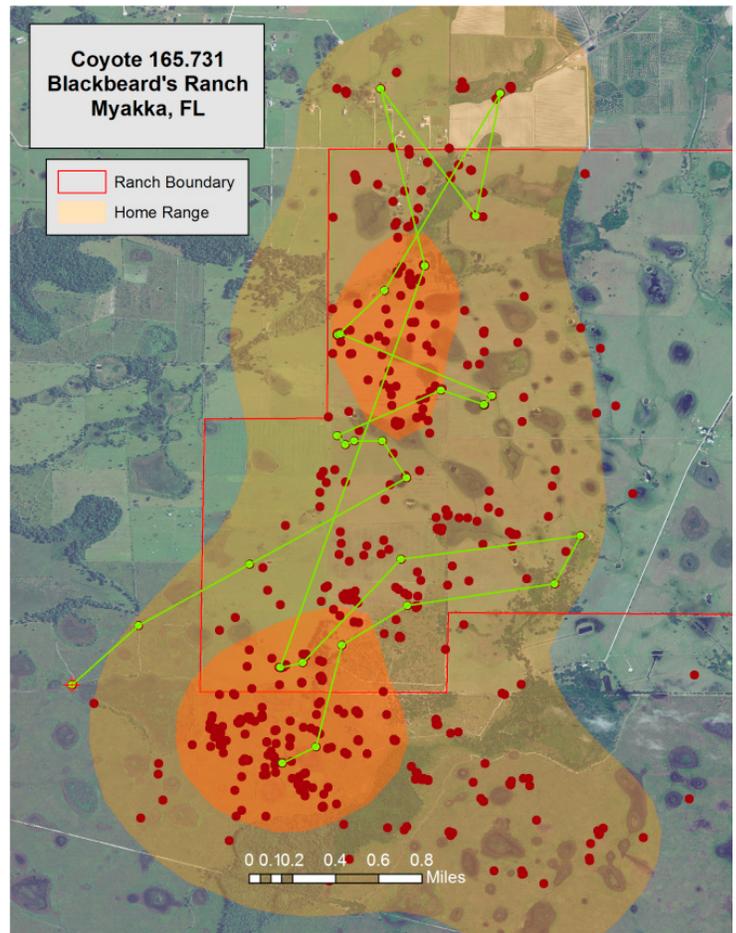


Figure 3. Female coyote home range in yellow (1790 acres), with highest use areas in dark orange (298 acres). One high use area is south of ranch boundary in Myakka State Park and then a second area is in the ranch about 2 miles north. The green highlighted track is the longest movement made in a 24hr period of 12.2 miles, the shortest was 2.9 miles, and on average this female coyote traversed 6 miles every day within her home range.

## Staff News

In January, Educational Media/Communications Coordinator, Andrea Dunlap, was recognized as one of twenty IFAS Division 2015 Superior Accomplishment Award winners. These twenty will now be considered for the campus wide award in their category. Winners will be announced in the spring.



**Recent Publications**

Aldredge, R.A., R.K. Boughton, M.A. Rensel, S.J. Schoech, and R. Bowman. 2014. Hatching asynchrony that maintains egg viability also reduces brood reduction in a subtropical bird. *Oecologia*. 174(1): 77-85.

Apolinario, V.X.O., J.C.B. Dubeux Jr., A.C.L. Mello, J.M.B. Vendramini, M.A. Lira, M.V.F. Santos, and J.P. Muir. 2014. Litter decomposition of warm-season grass pastures grazed with different stocking rates and nitrogen fertilizer levels. *Agronomy Journal*. 106:622-627.

Arthington, J.D., P. Moriel, P.G.M.A. Martins, G.C. Lamb, and L.J. Havenga. 2014. Effects of trace mineral injections on measures of performance and trace mineral status of pre- and post-weaned beef calves. *Journal of Animal Science*. 92:2630-2640.

Dubeux Jr., J.C.B., L.E. Sollenberger, J.M.B. Vendramini, S.M. Interrante, and M.A. Lira. 2014. Stocking method, animal behavior, and soil nutrient redistribution: How are they linked? *Crop Science*. 54:2341-2350.

Ferrell, J. A., B.A. Sellers, and R.G. Leon. 2014. Management of spreading pricklypear (*Opuntia humifusa*) with fluroxypyr and aminopyralid. *Weed Technology*. 28:734-738.

Krueger, N., L.E. Sollenberger, A.R. Blount, J.M.B. Vendramini, N.L.S. Lemos, A.G. Costa, and A.T. Adesogan. 2014. Mixed stocking by cattle and goats for blackberry control in rhizoma peanut-grass pastures. *Crop Science*. 54:2864-2871.

Lancaster, P.A., C.R. Krehbiel, and G.W. Horn. 2014. A meta-analysis of effects of nutrition and management during the stocker and backgrounding phase on subsequent finishing performance and carcass characteristics. *Professional Animal Scientist*. 30:602-612.

Lancaster, P.A., G.E. Carstens, J.J. Michal, K.M. Brennan, K.A. Johnson, and M.E. Davis. 2014. Relationships between residual feed intake and hepatic mitochondrial function in growing beef cattle. *Journal of Animal Science*. 92:3134-3141.

Lancaster, P.A., E.D. Sharman, G.W. Horn, C.R. Krehbiel, and J.D. Starkey. 2014. Effect of rate of weight gain of steers during the stocker phase. III. Gene expression of adipose tissues and skeletal muscle in growing-finishing beef cattle. *Journal of Animal Science*. 92:1462-1472.

Martin, L. B., R.K. Boughton, and D.R. Ardia. 2014. A new division of ecoimmunology and disease ecology. *Integrative and comparative biology*. 54(3):338-339.

Moriel, P., S.E. Johnson, J.M.B. Vendramini, M.A. McCann, D.E. Gerrard, V.R.G. Mercadante, M.J. Hersom, and J.D. Arthington. 2014. Effects of calf weaning age and subsequent management systems on growth performance and carcass characteristics of beef steers. *Journal of Animal Science*. 92:3598-3609.

Moriel, P., S.E. Johnson, J.M.B. Vendramini, V.R.G. Mercadante, M.J. Hersom, and J.D. Arthington. 2014. Effects of calf weaning age and subsequent management system on growth and reproductive performance of beef heifers. *Journal of Animal Science*. 92:3096-3107.

Mullenix, M.K., L.E. Sollenberger, A.R. Blount, J.M.B. Vendramini, M.L. Silveira, and M.S. Castillo. 2014. Growth habit of rhizoma peanut affects establishment and spread when strip-planted in bahiagrass pastures. *Crop Science*. 54:2886-2892.

Prevatt, C., J. Novak, W. Prevatt, M.R. Worosz, K. Balkcom, W. Birdsong, B. Gamble, and J.A. Howe. 2014. A Return-risk analysis of southern row crop enterprises and the sod-based rotation. *Journal of Agribusiness*. 31:181-191.

Sollenberger, L.E., K.R. Woodard, J.M.B. Vendramini, J.E. Erickson, K.A. Langeland, M.K. Mullenix, C. Na, M.S. Castillo, M. Gallo, C.D. Chase, and Y. López. 2014. Invasive populations of elephantgrass differ in morphological and growth characteristics from clones selected for biomass production. *Bioenergy Research*. 7:1382-1391

Soni, N., R. G. Leon, J.E. Erickson, J.A. Ferrell, M.L. Silveira, and M.C. Giurcanu. 2014. Vinasse and biochar effects on germination and growth of palmer amaranth (*Amaranthus palmeri*), sicklepod (*Senna obtusifolia*), and southern crabgrass (*Digitaria ciliaris*). *Weed Technology* 28:692-702.

Vendramini, J.M.B., L.E. Sollenberger, A.B. Soares, W.L. da Silva, J.M.D. Sanchez, A.L. Valente, A.D. Aguiar, and M.K. Mullenix. 2014. Harvest frequency affects herbage accumulation and nutritive value of brachiaria grass hybrids in Florida. *Tropical Grasslands*. 2:197-206.

## 2015 RCREC Field Day Has a New Structure

Plan to join us on April 9th for our next field day. This particular event is held every 18 months allowing attendees to see the facilities, field sites, and learn about the research being done in the spring and fall seasons. This year's event will have a new structure as attendees will divide into two groups, allowing one group to hear indoor presentations while the other group travels by tour wagon to field sites for on-site research talks. These groups will switch places mid-morning so that both groups have an opportunity to see the same presentations, just at different times. This is being done so that we can utilize our newly constructed Grazinglands Education Building.

After the morning talks, everyone will enjoy a nice steak lunch prepared by the Cloverleaf Foundation of Hardee County followed by a special graduate student program with research displays and presentations. Many of our field day sponsors will also be on site under the sponsor tent during the morning registration (8:00-9:00 a.m.) and available again during the lunch/graduate student program (12:00 – 3:00 p.m.) with knowledgeable representatives, informational product displays, and literature.

To register to attend (\$15 fee), or sponsor (\$100 fee) our field day, you have two options. You can register online through Eventbrite: <http://rcrec-fd-2015.eventbrite.com>. There you can pay the by credit or debit card or opt to pay 'off line' to pay by cash or check at the event. Another option is to give us a call at 863-735-1314. Phone payment can only be made by cash or check. When registering, please give us the name of each attendee so name badges can be printed for each person. Please keep in mind the deadline for sponsor registration is March 20 and the deadline for general registration April 3.

Don't miss this special opportunity to come out and see our facilities, learn about current research, and view the exciting work being done by our graduate students!



*Grazinglands Education Building*

## Upcoming Events

### 2015

#### **Herd Health Management School**

**- March 26, Okeechobee**

Call the Okeechobee Co. Extension Office for more information: 863-763-6469  
[Click here to view the flyer.](#)

#### **UF/IFAS Range Cattle REC Field Day**

**- April 9, Ona**

See the flyer for this event in this newsletter.  
[Click here to register.](#)

#### **Florida Beef Cattle Short Course**

**- May 13-15, Gainesville**

Alto and Patricia Straughn IFAS Extension Professional Development Center  
[Click here to register.](#)

#### **Florida Cattlemen's Association Annual Convention**

**- June 16-18, Champions Gate**

Omni's Champions Gate Resort  
[Click here for more information.](#)

#### **UF/IFAS Range Cattle REC Youth Field Day**

**- June 25, Ona**

Call for more information: 863-735-1314  
 Details will be available in the spring.

We are so very grateful to Jan and Jim Beckley for the all they do with our grad students and exchange visitors! They come to the Center and meet with the students usually 1 night each week to share our American culture and help them with their English skills. They also involve them in church events and family gatherings during holidays. THANK YOU Mr. and Mrs. Beckley!!!



## Save the date!

8th Annual Youth Field Day

June 25



## Faculty News

**Dr. Herb Chapman, Jr.**, 91, passed away at Indian River Memorial Hospital on Friday, January 16, 2015.

Dr. Chapman completed his B.S.A. degree at UF in 1948 and his M.S.A. in 1951. His work began with UF in July of 1951 when he worked for two years as an Assistant Animal Husbandman at the Belle Glade Agricultural Research Center (now known as the UF IFAS Everglades Research & Education Center). In 1953, he left Belle Glade to attend Iowa State University where he obtained his Ph.D. in 1955. After graduation, he returned to Belle Glade as an Assistant Animal Nutritionist and was promoted to the Associate level in 1957 and full Professor in 1963. His work continued at Belle Glade until 1965 when he relocated to Ona and became the Center Director of the UF IFAS Range Cattle Research and Education



*Dr. Herb Chapman*

Center. There he remained until his retirement in 1981.



*Dr. Maria Silveira with students attending the short-course.*

### Short-course Offered to Students at Unesp in Brazil

In December 2014, Dr. Maria Silveira offered a short-course in Brazil to Unesp students in Jaboticabal, entitled, "Topics in Soil Science and Environmental Nutrient Management". Dr. George A. O'Connor, UF Soil & Water Science Department participated remotely in the effort. The 5-day course

covered various topics including scientific writing, environmental science and nutrient management, management of phosphorus containing residuals/fertilizer sources, phosphorus remediation strategies, sustainable agriculture, soil quality, and mechanisms associated with accumulation and protection of organic carbon in soils.

### Away on Sabbatical

For the next seven months, Drs. Joao Vendramini and Maria Silveira will call Australia home as they undergo a time of professional development at the University of Queensland. Both will be participating in research, teaching, and extension activities. Dr. Vendramini will be working with Dr. Max Shelton in the School of Agriculture and Food Science with a specific interest in learning new methods and assays to estimate  $N_2$  fixation in tropical and subtropical legumes. Dr. Silveira will be working with Dr. Neal Menzies (Head of School of Agriculture and Food Science and Dean of Agriculture, University of Queensland) and Dr. Dalal Ram (Senior Principal Scientist, Queensland Department of Science, Information Technology, Innovation and the Arts and Adjunct Professor of School of Agriculture and Food Sciences, University of Queensland). Her main focus is on soil carbon characterization and the impacts of sustainable land use management on soil carbon accumulation and greenhouse gas emissions from agricultural lands.



*Dr. Joao Vendramini & Dr. Maria Silveira*

Don't miss Dr. Silveira's article, "Grassland Biogeochemistry - Improving Carbon Sequestration and Sustainability" in the fall 2014 issue of the MYAKKA Newsletter. [Click here to access the newsletter.](#)

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## ABOUT THIS NEWSLETTER

This newsletter is a publication of the UF/IFAS Range Cattle Research and Education Center (RCREC) located in South Central Florida in the heart of Florida's cattle country. Our goal is to keep you up to date on RCREC happenings, publications, research, faculty & student news, upcoming events and bring you beneficial information you can use in your beef cattle or forage operation.

## CONTACT INFORMATION

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## Range Cattle Research and Education Center

# — FIELD DAY —

April 9, 2015 • 8:00 a.m.—3:00 p.m.

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### 9:00 a.m. Faculty Presentations & Field Tours

*Fetal Programming in Livestock*

*Replacement Heifer Economics*

*Pasture Selenium Application - Impacts on Selenium Status  
of Forage-fed Cattle*

*Control of Perennial Grasses*

*The Environmental and Economic Cost of Wild Hogs*

### 12:00 p.m. Lunch

### 1:00 p.m. Graduate Student Program: Research Displays & Presentations

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Register by April 3rd to attend!

Online— <http://rcrec-fd-2015.eventbrite.com> or call: 863-735-1314

Registration Fee—\$15, includes literature & steak lunch

Location: Grazinglands Education Building - 3401 Experiment Station - Ona

