United States Department of Agriculture
Natural Resources Conservation Service

Helping People Help The Land

Fall/Winter 2014 Issue No. 29&30

The Reverchon Naturalist

Recognizing the work of French botanist Julien Reverchon, who began collecting throughout the North-Central Texas area in 1876, and all the botanists/naturalists who have followed ...

Foxglove

Penstemon cobaea

Znobia Wootan

Foxglove is a show stopper of a wildflower. It has the largest flowers of any species in this genus. Scientifically known as *Penstemon cobaea*, Foxglove has many common names such as Prairie Penstemon, Large-flowered beardtongue, Foxglove Penstemon, Showy beardtongue or Prairie beardtongue.

The flowers can range in color from white to pale purple to dark lavender. The white flowers have deep purple lines on the inside giving it a slight orchid look (Figure 1). The bloom itself is tubular and has very showy corollas up to 2 inches long that cover up to two-thirds of the bloom stem.

Figure 1 (above right). **Tubular blooms of Foxglove range in color from white to lavender.**

Figure 2 (right). **Sharply-toothed leaves clasp the stem of Foxglove.**

Photos credit: Znobia Wootan

The stems themselves can be up to two feet long and average 3-4 four stems per plant (Figure 2).

At peak blooming times in spring, it offers a dramatic picture. It is native to the North American prairies and this particular species likes our Texas weather. It will survive the dry times and produce spectacular blooms during normal rainfall years. But, wet soils are not tolerated. Despite its rather hot house tropical look, this native is made for Texas, tolerating summer's searing heat to tolerating winter's freezing cold temperatures to -20˚F.

(Continued on page 3)

Confession is Good for the Soul

In case you believe you missed an issue of the *Reverchon Naturalist*, you really didn't. This issue is the combination of the September-October and November-December issues. The problem was on my end, co-editor Melissa Sturdivant had her part done and was waiting for me in early November but I had other priorities that was occupying much of my free time. That priority was distributing boxes of the *Range Plants of North Central Texas* plant books which first arrived in mid-September.

The books are being sold through 72 soil and water conservation districts (SWCD) across north and west Texas. All 51 counties of the north central Texas area within the NRCS zone 5 are now participating as are 14 SWCD's in the panhandle and 7 SWCD's in the Hill Country. From Amarillo to Gail to Ozona to Kerrville to Cameron to Bonham, you can find the book at a nearby SWCD. If your local SWCD has not begun to sell the books, have them contact me and we will make it possible. The book is now also available online through our good friends at the Botanical Research Institute of Texas in Fort Worth and through Native American Seed in Junction for those who are not near an SWCD office or want to order with a credit card. See the book at the two links below:

http://shop.brit.org/collections/frontpage/products/range-plants

http://www.seedsource.com/catalog/detail.asp?product_id=6069

I have revived the pony-express method as a way of moving these boxes, each of which weighs 47 pounds. The books might be damaged if shipped by individual box and besides, it would be too costly to ship by postage. Carrying up to 8 boxes in the cab of my government pickup I have gone far and wide carrying boxes while still doing my regular duties of working with field office staff and assisting landowners. This pony-express method requires quite a bit of coordination to have the pickup loaded and boxes marked for next-day delivery to offices on the way to my destination. I have even used an old cargo trailer to haul loads of up to 29 boxes which keeps the boxes safe and dry. Since the books arrival in mid-September, 3,800 copies have been distributed far and wide across Texas, a second printing of 4,000 copies has been ordered, and as Paul Harvey will always be known for saying, "And now, you know the rest of the story". And yes, the books are still available for $20.00 each. Thanks a bunch.

Ricky Linex

Ricky Linex is a Wildlife Biologist with the USDA-NRCS in Weatherford, Texas, and serves as the Co-Editor for the Reverchon Naturalist.

Spotted Knapweed is *spotted* for the first time in Texas!

Dr. Jim Mueller, Biologist at the Balcones National Wildlife Refuge, recently reported that a native grass planting done in the last two years was contaminated with seed of spotted knapweed (*Centaurea stoebe ssp. micranthos*). If you have planted native grass seed in the past two years or so, be on the lookout for this highly invasive weedy plant.

More information about this noxious weed can be found at the following webpage:
www.invasivespeciesinfo.gov/plants/spotknapweed.shtml

Photo credit: Dr. Jim Mueller, I&M Zone Biologist, National Wildlife Refuge System.

(Continued from Page 1—Foxglove)

Foxglove spends the first 1-2 years growing a deep root system that helps it deal with our Texas weather. It will grow in full sun or part shade and produces a rosette made of deep green leaves that are sharply-toothed. Foxglove prefers well-drained soil, and is commonly found along roadsides.

It is amazing to watch our native bumblebees (*Bombus spp.*) and other pollinators gently maneuver themselves into the flower and totally disappear. Many other bees enjoy Foxglove in addition to numerous moth species (Figure 3).

This wonderful wildflower can adapt to many garden conditions but is a favorite with native gardens and low water landscapes. It looks stunning when planted against a backdrop of yellow wildflowers such as Plains Coreopsis.

Znobia Wootan is a freelance writer and lives in Junction, Texas.

Figure 3 (above). **Foxglove blooms attract numerous pollinators including native bees and European honey bees as seen in this photo.** ***Photo credit: Znobia Wootan.***

Swanflower

Aristolochia longiflora

Garry Stephens

Swanflower is a member of the Dutchman's Pipevine group and produces deep, tuberous roots, with relatively few lanceolate, grass-like leaves which are green above and reddish brown underneath.

The large swan-shaped flowers (Figure 1) are brown and yellow with dark veining and splotching. The flowers are really beautiful but hard to spot in the landscape. Occurs "in hard packed sandy silt and in sandy loam in open grassy areas or in shade in south Texas, (*blooming from*) March to November; also in adjacent Mexico." (Correll & Johnston, "Manual of the Vascular Plants of Texas," 1979). Threats include land use conversion, overgrazing, indiscriminant brush clearing, and competition from non-native grasses. Management of habitats to ensure survival of plant colonies is absolutely necessary.

All species of Pipevine contain alkaloids or aristolochic acid. These compounds are carcinogenic and nephrotoxic. The black or red caterpillars of the Pipevine Swallowtail (*Battus philenor*) feed on these plants, making them toxic as both larvae and adults, while the adults feed on the nectar of a variety of flowers. Pollination of the species is through a mutualistic relationship with "saprophagous" flies which are presumably deceived by the floral odor. Flowers of many species within this family have trap-and-release mechanisms. The pollinators oviposit in the flowers, and their larvae grow on the fallen, decaying flowers on the ground thus benefitting both species.

Derivatives from this family of plants were often the main ingredients commonly found in snake-oil remedies sold by doctors in the old days.

Garry Stephens is a Wildlife Biologist with the USDA-NRCS in Corpus Christi, Texas.

Figure 1 (above). **Swan-shaped flower structure lends to the naming of Swanflower.** ***Photo credit: Garry Stephens, USDA-NRCS.***

Three Ways to Use the Land
A Fable for the Age of the Pill

Paul Barclay-Estrup
Reprinted from Colorado Outdoors March-April 1969

Once there were three islands of great beauty, each set in a sparkling southern sea and rimmed with fine beaches. Above, lay meadows and heights of land, and the meadows were filled with grass and flowers. Along the heights were forests and cathedral-like groves, dotted with sunlit openings. Higher still rose mountains, cliffs and scree slopes sheltering serene alpine meadowlands and lakes. Fresh water was plentiful in these lakes, and in the many streams and ponds. The climate was moderate on these islands, the vegetation was lush and green and the watercourses full.

There were no large animals or birds on the islands, yet they were far from deserted. On them, lived small rodents and their predators, many song birds, some hawks, and great colonies of sea birds around the edges of the sea. The streams and lakes teemed with fish and invertebrate life. There were no insects such as mosquitoes, black flies or fleas.

These three lovely islands were owned by a man with three sons. This man loved his sons. He also had a deep and abiding affection for goats (Figures 1, 2 and 3). He loved goats, and he had passed on this love of goats to his three sons. When the father was an old man, the three sons were middle-aged.

The first son had scientific training and had gone into agriculture on a large scale. He had unlimited finances. He had great respect for proven facts and logical concepts. He was known as Ecologist John.

The second son was a practical fellow who had been very successful in finance and industry. He had vast resources at his command. Businessman Bert, as he was known, was unshakably conservative. He distrusted new theories and held to the firm belief that More, and Bigger, must always be Better.

The third son, James, was a missionary. He was not penniless, but had no funds at his disposal to compare to those of his two brothers. Missionary James was a highly moral man who had a profound respect for life. He speculated a great deal on the purpose of life. He believed that man should interfere as little as possible with the workings of nature.

The three sons shared a wholesome love for their father and a genuine affection for goats. When the father knew that the time had come for him to die, he gathered his three sons around him. "To each of you, I leave one of my three beautiful islands," he whispered. "Each of you will have a herd of 200 goats who will make the islands their home. You must do all in your power to make the best possible life for these goats. The interests of the goats will be foremost. Promise me that their freedom and well-being will always be uppermost in your thoughts."

The promises were given and the three sons at once began to carry out the wishes of their father.

Figure 1 (left). **Landscape photo —not of some far away remote island, but from an overgrazed landscape in Central Texas.**

Photo credit: Ricky Linex, USDA-NRCS.

Figure 2 (inset photo). **Nannies and kids.**

Photo credit: USDA-NRCS Maryland

(Continued on next page)

(Continued from Page 4—Three Ways to Use the Land)

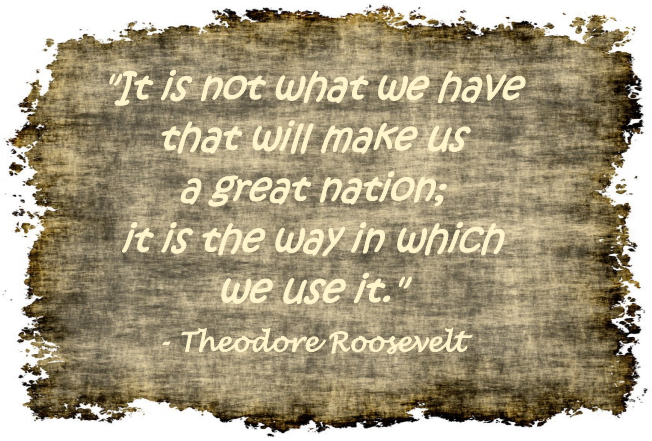
The first son, Ecological John, gathered together a team of ecologists. They studied his island to determine the resources available, the productivity of plants edible by goats, and all other aspects of the environment. John wished to establish a balanced system in which no part could work to disrupt the harmony of the whole.

The goats also had to be studied, for their well-being was vital. A happy goat has certain requirements. Goats need the companionship of other goats. They like lush food made up of a variety of plants. They like clear water to drink, meadows to feed in and run through and rocks through which to climb. Ecologist John found that his goats could have all these things forever, and without destroying the capital resources of the island – as long as the population of the island did not exceed 500 goats. He also discovered that, with such an abundance of food, his goats would be healthy and would multiply rapidly.

Goats can live a healthy life for 20 years, especially if proper medical care is available. Under the favorable conditions on the island, the goats would double their population every five years. Therefore, in five to seven years the optimum population should be reached. Ecologist John's first move was to establish a veterinary station on his island. This was partly to ensure the good health of his animals, but also to control the population by adding The Pill as a food supplement whenever the population threatened to soar above the permissible level of 500 goats.

The second son, Businessman Bert, did not believe in population controls for economic (and therefore, moral) reasons. Increasing human populations were good for markets, good for business, and this was good on principle. Population controls hurt business, and were therefore bad. Bert believed that what was good for business was good for everyone and everything, including goats. The more goats the better, and the goats would be allowed to have kids at any time.

In a very few years, the goat population (which was geometrically increasing) began to outstrip the food supply, and the island could not produce enough food for the herd. Soon food had to be imported, but this was no real problem for wealthy Businessman Bert. As the goats began to multiply, their living space dwindled rapidly. Almost all of the vegetation was soon destroyed and erosion was rampant. Because space had become so restricted, Businessman Bert erected a huge building along the lines of a multi-storied car-park structure. To provide exercising space for the animals in their new but already cramped quarters, long treadmills were built on each level. With the help of modern technology, an efficient method of disposing of the enormous quantities of waste was found. With the first signs of overcrowding on Bert's island, mental diseases and physical diseases (that were mentally-induced) began to appear. Many of the stricken animals required treatment with tranquilizers. Eventually, each goat had to be given a daily dose of tranquilizing pills in order to prevent widespread aggression and depression. The effect on the goats was mass conformity in their behavior. They continued to increase, but as Bert's vast resources still remained available, the structure housing the tranquilized goats and their treadmills extended on up into the sky.



The third son, Missionary James, allowed his goats to reproduce freely, as he was opposed to birth control on religious and philosophical grounds. Soon, more was being taken out of the land than could be replaced. Erosion removed the soil, and eventually the goat population began to decline rapidly. The animals were decimated by starvation and disease.

(Continued on next page)

(Continued from Page 5—Three Ways to Use the Land)

Within his limited financial means, James did all he could to help his goats. But with each inadequate supply of food or medical care he brought to the island, there followed a temporary increase in population, followed by a decrease, and more starvation and disease.

The three sons, John, Bert and James, tended their islands for 35 years. At the end of that Time, Ecological John's island retained the fresh beauty of its flowers, beaches, meadows, trees and clear lakes. On it dwelt a herd of 500 goats, each destined to live to a happy and healthy age. The only restriction on their freedom was that they were allowed to bring only a limited number of progeny into the world.

On Businessman Bert's island, there were more than 50,000 goats, all living in complete conformity in an enormous skyscraper. They were happy and healthy as long as they were given their daily supply of "happy pills," and there were no restrictions at all on their freedom to reproduce.

On the third island belonging to Missionary James, the passing of 35 years had left a herd of only 200 goats, all stunted and diseased. They lived in an environment of eroded slopes and mud-filled valleys. They suffered always from malnutrition and starvation, while the original beauty of the island was destroyed forever. But, like the goats on Businessman Bert's island, the goats had unrestricted freedom to produce their kind.

Each of the three sons had honestly and sincerely carried out the father's wishes. Each had done what he thought best and right for the goats.

Figure 3 (above). **Although impact to this "island" is not as extensive as what must have occurred on islands two and three from the fable, a distinctive browse line is a tell-tale sign of over usage by goats (other animals or wildlife) that are feeding on the native vegetation.**

Photo credit: USDA-NRCS Missouri.

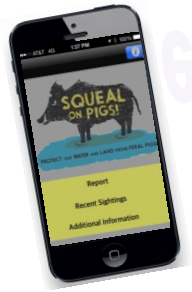
And yet what two of the sons thought best for the goats turned out to be calamitous.

If you were a goat looking for a home, which island would you choose?

Dr. Paul Barclay-Estrup (editor's note – in 1969) is on the staff of Lakehead University in Port Authur, Ont., where he is now assistant professor of biology. As a change from the routine lecture, Dr. Estrup last year related the substance in this article to his plant ecology class. The humor – and pathos – of the tale made a lasting impression on the students. The fable illustrates something of man's haplessness when faced with proper land use.

Editor's Note (2014) - Dr. Paul Barclay-Estrup was a Professor of Biology at Lakehead University from 1966 to 1990. While on sabbatical in 1987, he was diagnosed with leukemia. Shortly thereafter, ill health forced him to take early disability retirement and he died in 1993. Over 1100 vascular plant specimens in the Claude E. Garton Herbarium were collected by Dr. Barclay.

Squeal on Pigs!



App goes *feral*!!

Check out this App!

This app is designed to assist landowners, natural resources and wildlife managers with the management of their natural resources, especially our waterways. Suspected sightings and damage resulting from feral pigs can be reported and monitored on interactive maps. Photos can be uploaded, too.

Information about the history, biology and damage resulting from feral pigs is also provided to users of this app.

If you know of an app, either Android or iTunes, which might be beneficial to our reading audience, please forward the info to the Editorial Staff.

Shop BRIT

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The Botanical Research Institute of Texas

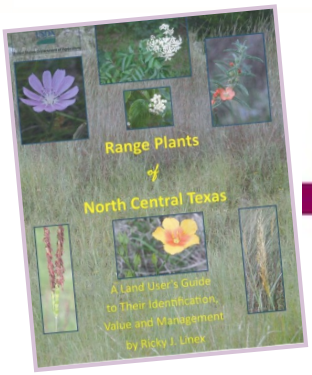

Figure 1 (above). **Cover art for *Range Plants of North Central Texas.***

Photo of cover art: Ricky Linex, USDA-NRCS.

Fall 2014 marked the long-awaited debut of Ricky Linex's *Range Plants of North Central Texas*.

Sales have been amazing and everyone seems very pleased with the book. Our SWCD Partners are helping to get this resource into the hands of our landowners. Recently, another means to purchase the book became available online with the Botanical Research Institute of Texas (BRIT) and Native American Seed of Junction, TX. If you can't get to a nearby SWCD Office to pickup a copy, then contact the BRIT or Native American Seed to purchase a copy today.

http://shop.brit.org/products/range-plants

http://www.seedsource.com/catalog/detail.asp?product_id=6069

photo spot

Out on a Limb!

This photo was captured on a ranch north of Albany in Throckmorton County. It's always a good sign to see Bobwhites, especially as they congregate in their social groups—even out on a limb, a covey looks amazing!

Photo source: Lloyd Payne

photo spot

Some days you are the E-tor, and some days you are the E-tee!

(with apologies to Mr. Spielberg)

Predator-prey interactions viewed from the back porch can be disturbing.

Yes, the photo (below) may be objectionable to some. It is tough to see, but when we take time to understand the predator-prey relationships which exist throughout our natural world, even those in our own backyards, we can better understand what is occurring and why. Wood Warblers such as this Yellow-breasted Chat (*Icteria virens*) feed primarily upon insects and berries, but they are part of a larger food web (Figure 1).

NRCS Soil Conservationist Mike Turner of the Gainesville Field Office took this photo in late September from his back porch. An Orb weaver spider (*Araneus spp.*) preys upon a Warbler.

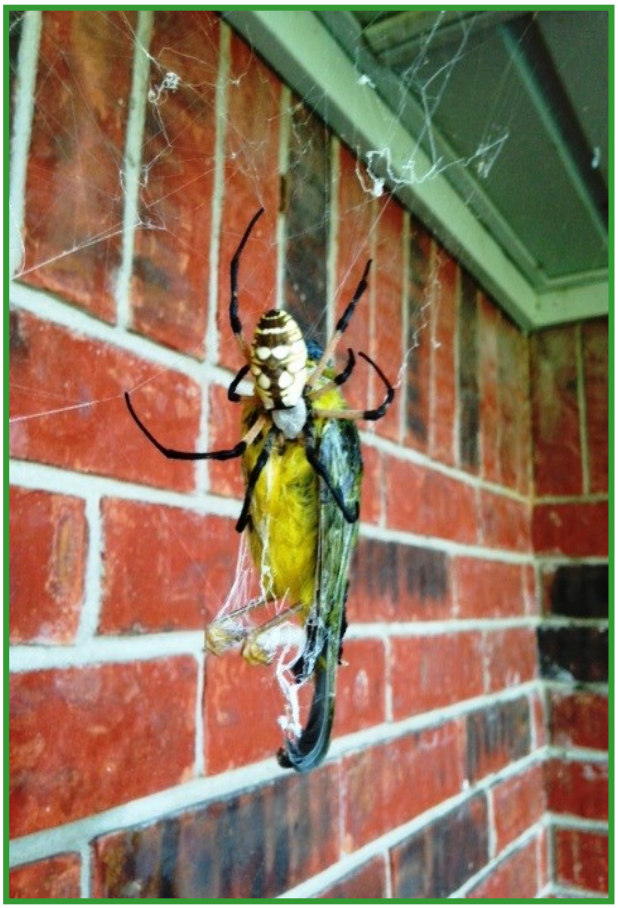

Figure 1 (above). **Orb weaver spider catches a Yellow-breasted Chat in flight, and then consumes it.**

Photo source: Mike A. Turner, USDA-NRCS.

From the Prairie— to the Plate and the Medicine Cabinet

Melissa Sturdivant

Scurf-pea

Pediomelum cuspidatum
Syn: *Psoralea cuspidata*

You have probably admired this beauty as it is common to Central Texas' short-grass prairies and open woodlands. Scurf-pea, a perennial forb, has some other commonly-used names—Indian turnip, Tall-bread scurfpea, Scurfy-pea and Indian breadroot. A member of the Fabaceae family, this legume blooms for a short period beginning in early April through June, sometimes later depending on the location. The bean pod is a single seed encased in a papery pod.

Figure 1 (below). **Such a nice setting, and the natural light seems to bounce off the wall of the road cut to illuminate the purple blooms of Scurf-pea.** ***Photo credit: Ricky Linex, USDA-NRCS.***

Plants of the Pediomelum (previously Psoralea) genus have a tuberous root, and depending on which of the reported 15 or more Pediomelum species occurring in Texas that you find, will determine how large the tuber is and if it has nutritional or medicinal value or not. Exercise caution to ensure you identify the species before consuming the root or any plant part. It is reported that some *Pediomelum sp.* might be toxic to livestock.

However, this Scurf-pea species (*P. cuspidatum*) has a long history of use by Plains Indians and early settlers. The roots are not as large as some of the other Pediomelums, but are believed to have about 70% starch content which makes them ideal for cooking and storing for later use. The roots can be ground to a powder and used as a flour, or mixed with other grains to make a bread, lending more evidence for its naming as "Indian breadroot." The roots can be peeled and cooked in soups and stews. They can be eaten raw, or dried and stored for later use.

A related *Pediomelum sp.* growing in more northern latitudes was extensively used. In fact, John Colter, of the famed Lewis and Clark Expedition, reportedly escaped an Indian raid and lived in the wilderness for more than 30 days and survived by eating this root. There are many written accounts of its use by many Native Peoples, as a food and for its healing properties.

Medicinally, there is hope for this class of plants as they have proven medicinal value and are being researched for potential pharmaceutical derivatives. This plant's root contains a substance, psoralen, which might be useful in the treatment of psoriasis, leukemia, and auto-immune diseases such as AIDS.

Melissa Sturdivant is a Soil Conservationist for the USDA-NRCS in Goldthwaite, Texas, and serves as the Co-Editor for the Reverchon Naturalist.

MARK YOUR CALENDAR

TEXAS POLLINATOR POWWOW

February 28, 2015 • Lady Bird Johnson Wildflower Center
8:00 am—5:30 pm
Combined, we will be covering birds, bats, bees, butterflies, botany and bucks (that would be conservation money from the feds).
For more information and to register for this event, see
http://txpollinatorpowwow.weebly.com/

Send your calendar items to Ricky Linex at ricky.linex@tx.usda.gov and Melissa Sturdivant, at melissa.sturdivant@tx.usda.gov.

See anything happening on your Texas rangeland? Articles *and* photos related to the flora and fauna of our native landscape are welcome. We'd really like to hear from you; please share what's happening in your part of the state.

Send your 300 to 500-word essay to Ricky Linex at ricky.linex@tx.usda.gov and Melissa Sturdivant at melissa.sturdivant@tx.usda.gov

Melissa Sturdivant