

Eastern Bluebirds

Bluebird Species in the U.S.

Eastern Bluebird





Western Bluebird





Map by Cornell Lab of Ornithology Range data by NatureServe

Mountain Bluebird



Map by Cornell Lab of Ornitholog Range data by NatureServe

General Biology – Eastern Bluebird

Length: 6-8 inches
Weight: 1 ounce
Wingspan: 10-11 inches
Average Lifespan: 6-8 years



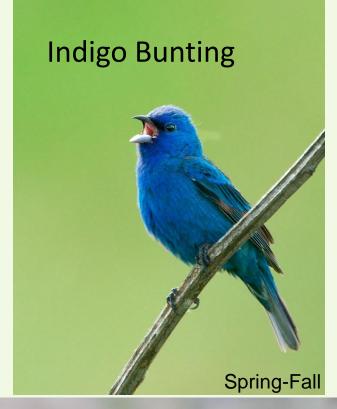
- Passerines (perching birds)
- Fossil evidence back to the late-Pleistocene Epoch
- Members of the thrush family

(i.e., Wood Thrush, Swainson's Thrush, American Robin)

• Social, but territorial

Other "*blue*" birds seen in our area





Blue Grosbeak

Spring-Fall



Cerulean Warbler



Northern Parula (warbler)

Not as common, but here occasionally during migration.



Black-throated Blue Warbler



Blue-gray Gnatcatcher

Eastern Bluebird

Sialia sialis



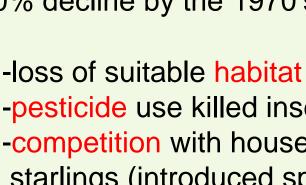




The bluebird population in the U.S. was healthy before the mid 1800's then a decline.....



~ 60-70% decline by the 1970's





-pesticide use killed insects birds feed on -competition with house sparrows & European starlings (introduced species) for nesting cavities -metal fence posts replaced wood posts that historically been used as nesting cavities



True or False?

Significant climatic events can have a very significant impact on Bluebird populations?

- extreme cold spells can have a major impact on their ability to survive
- 1976-77 & 1977-78 an estimated 60% of the U.S. population died
- Some areas lost closer to 90%

The February 2021 record cold event in north Texas resulted in a significant decline in the refuge bluebird population.

2020 - 55 nesting attempts resulted in 130 fledged birds 2021 - 10 nesting attempts resulted in 41 fledged birds

This represents an 82% reduction in nesting attempts and a 68.5% reduction in bluebirds fledged.

- With over 10 days straight of below freezing temperatures during the 2021 cold snap, food for bluebirds (primarily insects) was not available leaving many to literally starve and/or freeze to death.
- Bluebirds are known to huddle together in one location to use their collective body heat to help survive periods of cold weather and even arrange themselves to avoid smothering. A total of 13 birds huddled in one box on Raasch Trail to try and survive the cold blast. Unfortunately, they were not successful.
- The refuge bluebird nest box program is more important than ever as the population begins to rebound.

- Late 1960s Bluebird box trails were first put in place
- 1978-North American Bluebird Society (NABS) formed
- 1979 US Fish and Wildlife Breeding Bird Survey reported Eastern Bluebirds were "very rare" in many areas of the midwest and east, "rare" in other areas, and "uncommon" in much of their original range.
- 1980s-90s, bluebird box trails became more popular.

Bluebird populations have made a good comeback – due in large part to the establishment and maintenance of bluebird trails throughout the range of this species.



Bluebird populations increased by an <u>average</u> 2%/yr. 1966-2010 (*including some years with drastic declines*)

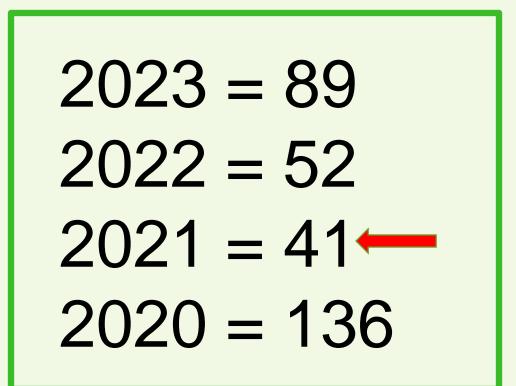
Partners in Flight estimates the current global breeding population at 23 million birds - 21 million are in the U.S.

Birds of North America – On-line Version





After the 2021 Super Freeze Refuge Nestboxes - Bluebirds Fledged



Where Do You Find Bluebirds?

Open rural country with scattered trees

Meadows and pastures

Backyards

Golf courses and parks



Often seen sitting on power lines or fences

What do all of these places have in common?



golf courses and parks

meadows and pastures

Survival - What do bluebirds need?

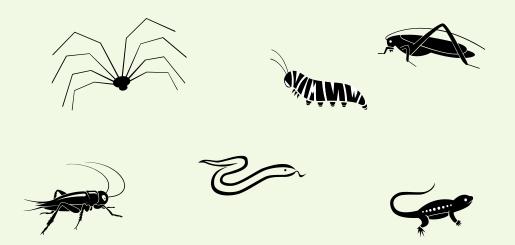


FOOD

insects - grasshoppers, crickets, katydids, beetles, caterpillars, worms, snails, & spiders - 80% of their diet in spring and summer

berries - sumac, hackberries, juniper berries, pokeweed, blackberries – critical from late fall through winter

on occasion – shrews, snakes, lizards, tree frogs







Ground and Brush Foragers

- Use available perches to watch for movement then jump or glide to the nearby ground in efforts to catch the prey
- Can catch insects mid-air
- Will land on bushes or trees for fruit and berries





WATER

•Need fresh water to drink

 Readily use backyard birdbaths for bathing and drinking



•Attracted to dripping water and misters





SHELTER

- Bluebirds are secondary cavity nesters
- Will use natural cavities in trees or posts, or nest boxes
- Will sometimes roost in boxes and cavities during winter and cooler months for protection from the cold
- Will often use brushy areas for shelter from cold and storms





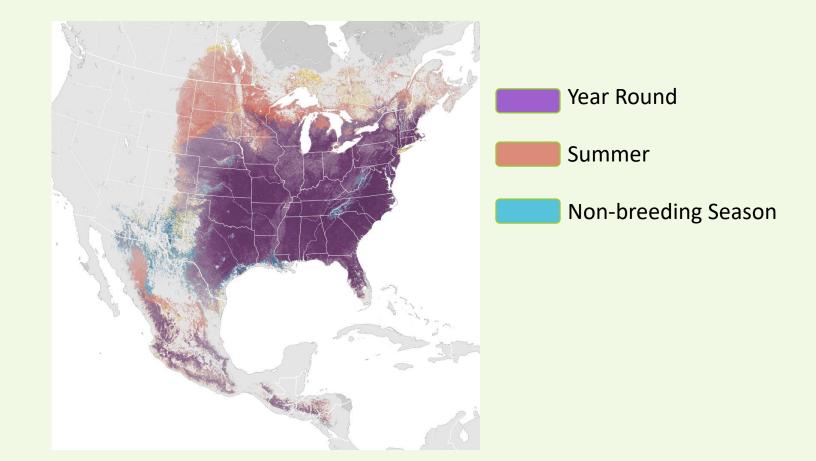
- open areas (preferred)
- 2 to 3 acres are defended during nesting season
- may forage on 50-75 acres (including forests) during winter months to find adequate food





Sometimes eastern bluebirds migrate, sometimes not, depending on weather and food availability

Many non-migratory bluebirds remain close to their breeding site year-round (normally the case here)



Did You Know??

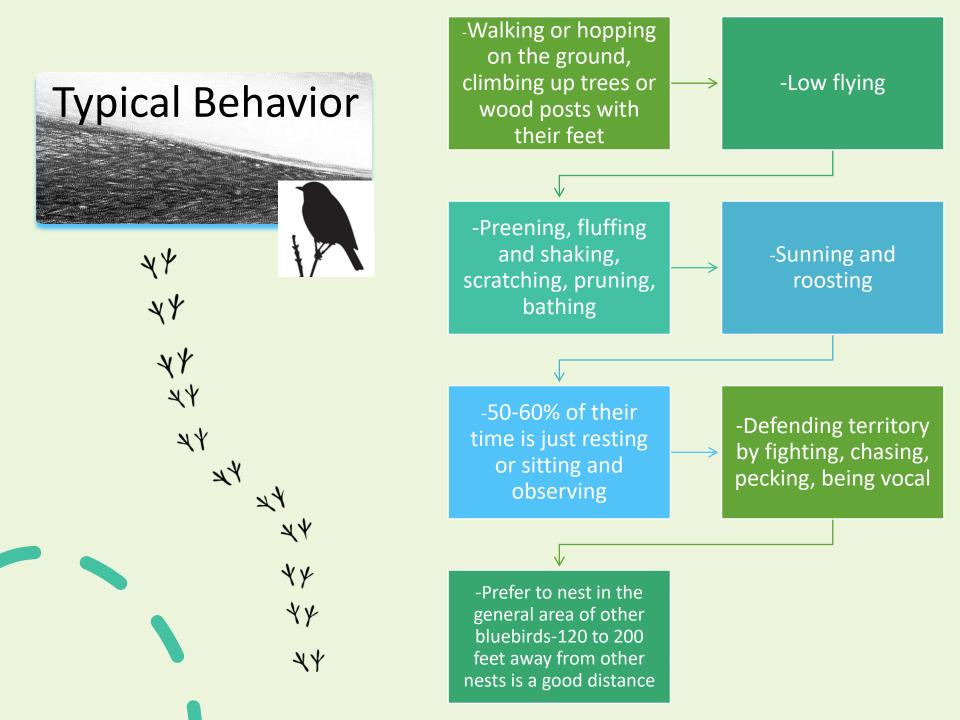
the oldest recorded Eastern Bluebird lived to be.....

10 years 5 months old





Behavior and Breeding Biology



Breeding Behavior

Male bluebirds find a nest site (usually begin scouting in February) then attract a female by carrying materials in and out of the hole, perching, and fluttering their wings



Once "pair bonded" the female builds the nest over 4 or 5 days. Consists of loosely woven grass or pine needles, sometimes finer grasses or hair/feathers line the inside.











Examples of nest site selection and materials

Defending Their Territory



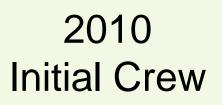
- Average "area" bluebirds protect is 2 to 3 acres
- Both sexes may aggressively chase off bluebirds and other species near their nest cavity
- Fights can sometimes actually lead to death of one of the birds

Bluebirds at Hagerman NWR



Hagerman Nest Box Team

- Formed in 2010 (14th Anniversary this year WOW!)
- Initially, three separate "trails" (53 boxes) were monitored weekly, now there are 45 boxes on 2 trails.







- 2010-Friends of Hagerman purchased new & good used boxes, poles, predator guards, and hardware
- Box assembly party in early 2011

Nest Box Installation Day in 2011





Materials Used

- 7-foot long metal pole placed 2 ft. in ground
- Pole driver
- Bluebird box
- Rust resistant hardware to fasten box to pole
- Metal predator guard for the pole
- Hardware (clamp) to hold guard in place
- "Tanglefoot" on the pole, under predator guard











Each box received a number to aide recordkeeping







Box Site Preparation & Maintenance

- Each spring, the boxes are cleaned out and pests are dealt with as needed
- Volunteers mow and trim around each box throughout the nesting season (mid February-mid August)









Predator guards are included on all poles

Critical For Success



Nest Box Location Maps Were Developed

"BluebirdBuggy" Purchased to Monitor Harris Creek Trail



Beginning in 2011, 20 Boxes Were Made Available for "Adoption"

•Funds go into the FOH bird nest box account for future needs

•Each adopted box is labeled with a name chosen by the sponsor who receives weekly email updates for their box



Supply buckets developed to carry everything needed to check and maintain boxes.



A smart phone is used to take images of what is (or isn't) in the box.





Notebooks for Data Collection

All data collected are entered into Cornell's online NestWatch Database

🕲 NestWatch

CORNELL LAB of ORNITHOLOGY

Multiple Nest Visits Data Sheet

This form is for your records — use it to locate and describe your nest site and record up to 10 visits to a nest. Use a separate form for each nest monitored and each new nest attempt. See keys on the next page for explanation of codes and fields. If response is "Other" enter "OT"; for "Unknown" enter "U."

/ear_				Speci	ies											
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							Habitat within 100 meters									
							Habitat modifier									
OR							Elevation (specify ft. or m.)									
Latitude N																
Longitude W –							Cavity orientation Cavity opening width (specify in. or cm.)									
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For the 2023 nesting season, Refuge Volunteer John VanBebber was the project coordinator



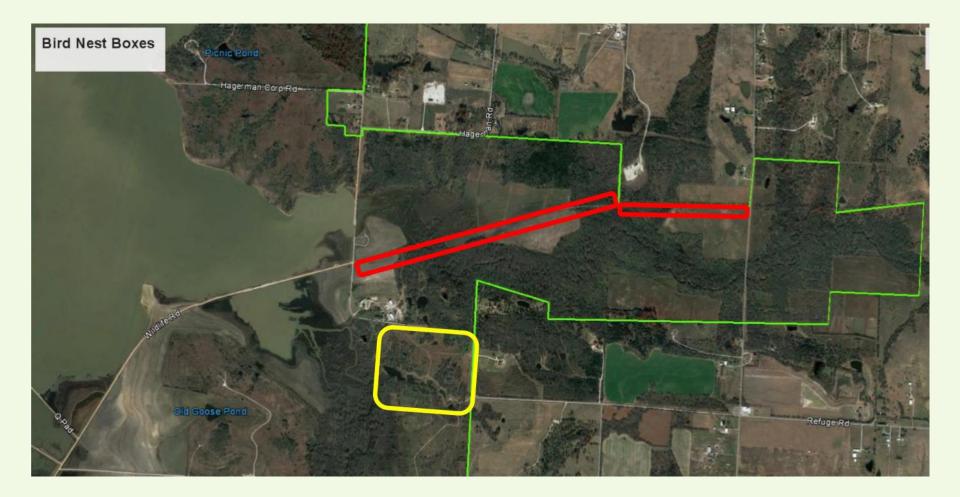
2019-New Trail Cart EZGO Express Purchased

Back-up plan for muddy days, several volunteers have been certified to operate UTVs and ATVs.





Current Nest Box Trail Locations Harris Creek Trail & Raasch Trail



Nest Box Monitoring



Volunteers slowly approach the box and tap lightly on the outside. The locking screw is loosened to allow the door to open. If there is a nest or partial nest, the species is identified. Best to finish monitoring for the day before noon if possible, especially on hot days.

What Other Common Native Cavity Nesters Do We Have?





Carolina Chickadee











Tufted Titmouse



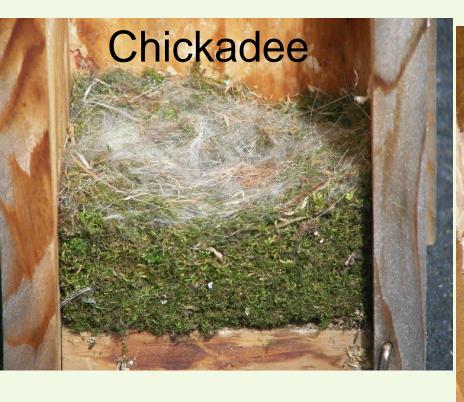
Eastern Bluebird



Carolina Chickadee



Carolina Wren







03/15/2012 13:32

Tufted Titmouse Young in Hagerman NWR nest





Prothonotary Warbler

Prefers to nest in forested areas over or near water

Once a nest has been confirmed and the species identified, a closer look inside is needed.





A small, hand-held mirror is used to look inside the nest for eggs or young birds, then the volunteer notes what is visible.

Most bluebird nests in our area are constructed of blades of dry grass

Nesting Timeline

•Typically lay 4 to 5 eggs, one per day

- •Female begins incubation after the last egg is laid. She comes and goes from the nest except at night (remains on nest)
- •Average incubation time is 12 to 14 days, then they hatch
- •The young birds fledge (leave the nest) 16 to 18 days after they hatch

•Commonly raise two broods per season, sometimes three



















95-96% of eggs are blue

4-5% are white





Incubation (female)

12-14 days



Hatching Day









Early on Day 1



Later on Day 1













A whole lot of feeding for the first couple of weeks!





Both parents feed the hatchlings

House cleaningadults remove droppings left by the young

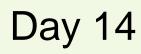














Ready to Fledge!

Young birds approach the opening, look out, then eventually jump out one by one. If one of them takes too long, the parent sometimes goes in and "encourages" them.

Parents lure the fledglings to near by cover (usually vegetation) for around 10 days. They pass along "life skills" and it is 3-4 weeks before they begin to feed themselves.

Young birds often stay near the parents until the next spring. At that point, they are often "encouraged" to go elsewhere. They will often breed their first spring season.

On Average

- 83% of eggs laid will hatch
- 75-90% will fledge the nest cavity
- 40-50% will survive the first year, then 40%-50% of those will survive the next year, etc.



Nest Box With Camera Near Visitor Center June 21, 2023 First Egg Noted





June 29



July 4 morning



July 4 afternoon

HNWR Blue Bird Nestwatch 07/12/2023 01:22:23 PM **************

July 22 – fledging day



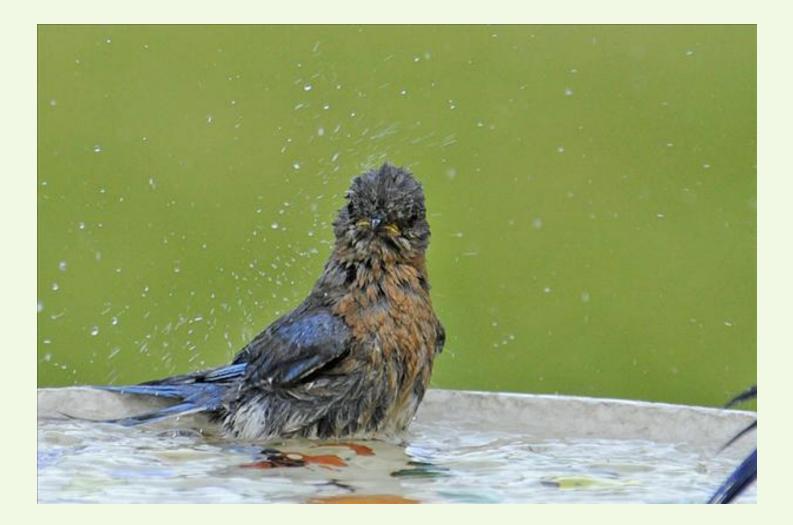
07/22/2023 07:11:45 AM





(typical) Juvenile Bluebirds

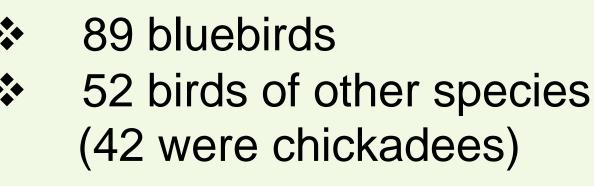
Once they fledge, the parents keep them mostly out of sight, laying low & hiding for a couple of weeks. After that, they often bring them to a water source to drink and bathe.







Feeding by both parents continues 3 - 4 weeks until they learn to forage on their own. 2023 Birds Fledged from Refuge Nest Boxes











2011-2023 Nest Box Production Hagerman NWR

1,675 Eastern Bluebirds Fledged

Other Species Fledged = 635

- ~ Carolina Chickadee
- ~ Carolina Wren
- ~ Tufted Titmouse
- ~ Prothonotary Warbler
- ~ Bewick's Wren













Some of You may be thinking... "I want a bluebird to use my box! Not a chickadee!"

What can you do to help make the box less inviting to chickadees, wrens, or titmice? *Place it in a more open area.*

If possible, offer a second box nearby with trees around it. If not, put the second box in the proximity of the one you want bluebirds in and hope they are aggressive enough to fight off competitors for at least one of the two boxes.

Dealing with Threats and Pests



House Sparrows (remove immediately when you are certain it is a house sparrow nest)



Fire ants



Blowfly and larvae







House Sparrow



The only boxes we have had house sparrows in were near the facilities.



Female



Wasp & Mud Dauber Nests



Use Ivory soap inside on the box top to deter wasps and daubers

Remove any you find weekly during box checks



It is critical that a predator guard be installed to keep out.....





Raccoons, opossums, and other climbing mammals



House cats





Snakes



A product called "tanglefoot" can be spread on the pole below the predator guard to capture any ants that try to crawl up from the bottom.



15 oz. tub or 6 oz. tube



Organic brown paste made of castor oil, waxes, and resins.

Should be available at Twin Oaks Nursery in Denison or online.

Make sure the strip of tanglefoot is applied as high as possible underneath the predator guard.

Do not use tanglefoot without the predator guard to cover it since many native birds attempt to perch on a vertical pole.





What Causes Most Bluebird Deaths?

Exposure

freeze or heat wave

Predation

- In nest box rat snake, squirrel, raccoon, house cat, other birds, fire ants, wasps, opossum, weasel
- Adults hawks, house cats, bobcat, fox

Fight with another bird

Vehicle collision

Pesticides



I want bluebirds to nest in my yard! How do I attract them?

First....a few questions?????

Do you have habitat suitable for bluebirds?

Are you willing and able to put up a suitable bluebird box?

Do you have time to commit to monitoring the box?

Can you provide and maintain a source of fresh water?



Keys to Successful Bluebird Nest Boxes

- Suitable Habitat
- Correct Box Placement
- Correct Size Box and Opening
- Up Early Enough in the Year (or leave up)
- Predator Guard!
- Keep Ants From Accessing Box
- Monitor Weekly to Deal With Any Problems That Arise
- Don't Use Pesticides in Your Yard



Provide plants that produce seeds bluebirds will eat



sumac



pokeberry



red cedar

Bluebirds will eat mealworms that can be purchased both alive or dried



Live







Dried



Mealworms are the larvae of the darkling beetle



Live Customer Service TOLAN to 6 PM EST 800-373-0555

http://unclejimswormfarm.com/

500 = \$16.95 1000 = \$23.95 Free Shipping 2000 = \$32.95 10,000 = \$109.95

Caring for mealworms is simple -

- mealworm bedding or whole wheat flour
- a slice of potato on occasion for moisture The worms will live, pupate into beetles and even breed.

Old bluebird nest materials – should they stay or should they go?

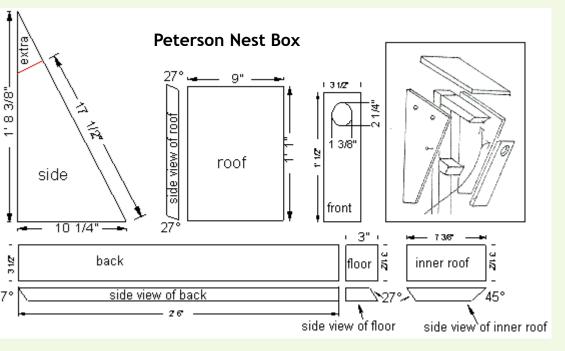
Sometimes bluebirds will build a new nest on top of one they just used. If that happens, leave it.

At the refuge, we remove all old nests (taking it far away) and prepare the box for a new one. This may help control ectoparasites such as lice, mites, ticks, fleas and flies.



Bluebird Nest Boxes – Which is the best????

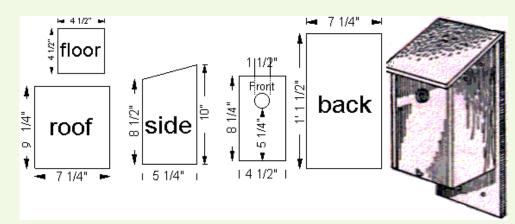
There are Many Different Designs













Eastern & Western Bluebird Nest Box

Bluebird Nest Boxes

•Use a correct box – there are several types to choose from.

- Must have a 1¹/₂ inch round hole or 1 3/8 inch oval hole
- Box in place and ready by late February/early March
- Well ventilated and able to drain
- Mount 4-6 feet off the ground, on a pole away from trees and fences
- 120-200 feet apart is best
- No perch at opening
- Cedar is a good material for boxes
- Predator guard is a must
- A hole protector may be needed if you have active woodpeckers in the area

OPLEASE DO NOT

- Put up a box unless you WILL monitor it
- Open the box after the 12th day following hatching
- Remove any bird nest other than house sparrow

References for Bluebirds and Boxes

~Nest box plans can be found on each of these websites~

North American Bluebird Society http://www.nabluebirdsociety.org/

Texas Bluebird Society http://www.texasbluebirdsociety.org/

Cornell Lab of Ornithology http://www.birds.cornell.edu

Bluebird Nest Box Plans

http://www.texasbluebirdsociety.org/documents/nestboxplans.pdf

Bluebird Information and Awareness http://www.bluebirdnews.com/

