



Welcome to our Earth Sabbath Celebration tonight, co-sponsored by ERUUF and NC Interfaith Power and Light. I'm Nancy Carnes, soon to be Nancy Hardy, and I will be facilitating these celebrations the 3<sup>rd</sup> Monday of each month.

Our intention is for this to be an interfaith celebration that provides those of us who love the earth with a place for connection, sharing and replenishing our spirits.

It has a simple format: we start with introductions and a simple community building game and then we light the chalice for the service which last until 8:30 pm.

You are invited and encouraged to share your gifts and creativity in helping this Earth Sabbath Celebration to evolve. If you feel moved to contribute in any way, let me know!

I'm glad that each of you is here tonight.

**Theme: Migrating Birds Know No Borders**

**We want to celebrate the great natural wonder of migration which connects continents, cultures and people...starting right here in North Carolina.**

(Show globe) Here is the Earth. Imagine it as a bird might see it flying over it – with no borders. You wouldn't be able to see the different countries in Africa or the shape of NC.

Migrating birds may not know borders, but they do know bioregions. Wendell Berry said, "In order to know who you are, you have to know where you are.", and Thomas Berry said, "To tell the story of anything, you must first tell the story of everything

So we're going to start with a game of Non-Trivial Pursuit about birds and this bioregion which we call NC, because this whole Celebration is about how interrelated they both are.

We'll each draw a card. Some cards are "Did You Know" cards, and all you have to do is walk up to others, introduce yourself and share and discuss what's on the card. Some of the cards say: Question. Somewhere out there is another card which says, "Answer." And you'll want to find the person who has the answer to your question. Or vv.

So circulate. Find someone. Introduce yourself. Share what cards you have and go from there! If you don't want to move around, just sit somewhere and let others come up to you.

If we run out of cards, you can help by connecting questions and answers as you run across them. Any questions about what to do? We'll stop at 7:15, even if questions remain unanswered. The main thing is to have fun and get to know some people you don't already know – and get tantalized by what we're going to explore this evening.

7:15

**Chalice Lighting:** “As we light the chalice, we bring our minds and hearts together as one as we give greetings and thanks to each other as people. We also give greetings and thanks to the Earth, water, air, plants, animals and elements that sustain us and give us everything we need to live a good life. Tonight we give special thanks to the birds. Each day they remind us to enjoy and appreciate life. May we continue to strive to live in balance and harmony with each other and all living things.”

**Centering Meditation:** [http://www.youtube.com/watch?v=NU9RO\\_v52e4](http://www.youtube.com/watch?v=NU9RO_v52e4). – 3 min

Do we have any expert birders who could tell us what we heard?

Song: Migrating Birds Know No Borders (flipchart)

## **Migrating Continents** (10 min)

To tell the story of NC, we need to start with how it was formed. This will give us an idea of how we have such a rich area here in NC in birds – so we're going to start with a 10 minute story of migrating continents before we get to migrating birds.

If there are any paleogeographers in the room, feel free to correct me if I make any egregious errors. I am going to give just a real brief, more poetic story on the life of NC – and I promise you, it will connect with migrating birds. Just come on this journey through time with me and you will see.

To start, there are rocks at Roan Mtn, NC that are about 1.8 billion years old. Doesn't that give you goose bumps? No other rocks anywhere in the Carolinas are even close to being that old. So we suspect they were once part of another continent that was stuck onto North America during a continental collision.

But then we start knowing a little bit more about this area called NC. A supercontinent known as Rodinia started forming 900-1200 million years ago. The piece of crust that would become the Carolinas was jammed against crust that would become South America. This created mountains of Himalayan proportions. Can you imagine that? They then eroded.

Then Rodinia started to break apart, forming rift valleys and basins. You can see rift-valley sediments in rocks at Grandfather Mountain and in the Smoky Mountains. Magma came up through the cracks, and you can see the resulting basaltic rocks in western NC, particularly Bakersville and Beech Mountain.

A new ocean was formed that lapped the shores of the Carolinas – at this time around Pilot Mountain and Linville Falls. The piedmont and coastal plain of NC was not there yet. It had not arrived as a gift from another continent.

I had thought about acting this out, having people holding cardboard cutouts of continents and crashing into each other, but I found a 5 ½ minute video showing the continental migration very well, starting right at this point of Rodinia breaking up at about 650 million years ago. .

As it plays, I'll point out other exciting developments for NC. The video is rich in information about biological development that you won't have time to take in – you can make it easy on yourself and not try to read it – I'll point out when birds and humans come into the story. And I have included the web address in the brochure if you want to view it later on your own.

<http://www.youtube.com/watch?v=GNmUd43pabg>

Sponges, 1<sup>st</sup> vertebrates and early primitive fish.

“500 - 470 mya” 1<sup>st</sup> primitive plants

★ “430 – 400 mya” Aha! This is where the Piedmont Terrane becomes a part of the Carolinas. The force of the collision pushed up the Appalachian mountains, one of the oldest mountain chains in the world, likely as high as the Alps. Then they began to erode.

“400 - 370 mya” – 1<sup>st</sup> vascular plants, amphibians

“370 – 340 mya” – 1<sup>st</sup> winged insects

★ “340 – 300 mya” – 1<sup>st</sup> cockroaches, 1<sup>st</sup> reptiles

★ “300 -280 mya” Ouch! Gondwana collides with Laurentia about 330 million years, pushing the Appalachians up again to Himalayan proportions over 26,000 feet or more. Layers of sediment and ash from Gondwana were deposited on Laurentia which with erosion became the monadnocks we know as Pickards and Occaneechi Mountain.

★ “280 - 260 mya” Phytoplankton!!!! The supercontinent, Pangea, forms.

★ Pangea begins to break apart, forming rift basins. NC has 2 major Triassic basins: the Deep River basin and the Dan River basin.

“260 – 240 1<sup>st</sup> dinosaurs and true flies.

★ “200 – 170 mya” 1<sup>st</sup> birds and flowering plants!!!!!!

“150 – 120 mya” Heyday of dinosaurs, earliest known butterflies, ants and bees

There goes Africa!

★ About 90 million years ago, sea level was 800 feet higher than it is today – the shoreline today would run from Winston Salem to Charlotte to Spartanburg. Probably contributed to the Blue Ridge escarpment, or the steep change in elevation from the piedmont to the Blue Ridge.

“65 - 50 mya” – mammals, rodents, primitive whales

“49 – 35 mya” – pigs, deer, cats, rhinos

★ “34 – 20 mya” – modern birds!!!!, horses, dogs, bears, monkeys and apes

★ “20 to present day” – 1<sup>st</sup> hominids, 1<sup>st</sup> humans, mammoths, mastodons, saber-toothed cats, giant sloths, human civilization

To recap, and to get a tantalizing view of the possible future, here is a video of 650 million years in under 2 minutes.

<http://www.youtube.com/watch?v=NYbTNFN3NBo>

10 to 20 million years in the future is very significant to NC even without global warming: The oceanic crust off the coast of the Carolinas is more than 200 million year old and will likely start to sink into the mantle in the next 10 to 20 million years. Once this process starts and the crust under the Atlantic Ocean begins to subduct beneath the Carolinas, our coast will change from a passive to an active margin. Earthquakes, volcanoes, and a brand-new mountain range will result.

7:40

**Sharing** (5 min)

How does the migration, the dance of the continents, the long view of time, and the significance that this fluidity and exchange of rock has had in shaping the terrain of NC and thus of our lives here make you feel? Why don't you share with your neighbor sitting next to you – take about a minute each.

Anyone want to share anything with the larger group?

7:45

### **Migrating Birds** (10 min)

Now, what does this have to do with migrating birds? A lot, especially here in NC.

We still have the highest point in eastern North America with Mt. Mitchell being 6,684 ft. and we have 43 peaks with elevations over 6,000. The mountains have been here a long time without being below sea level since forming, so life has had a long time to evolve here. The glaciers from the last ice age never made it all the way down here, so many species that migrated here ahead of the ice found refuge here. Multiple and overlapping habitats, abundant rain, microclimates, different soil chemistries, and changes in elevation create wide local variations. These factors contribute to the diversity and interrelationships of species.

The Blue Ridge Province more trees than all of Europe – over 100 species and over 2,000 plants including many that are rare and endangered. The Piedmont has the highest number of herbaceous and shrub species in North America – 3,635. The Piedmont ranks among the top ten ecoregions in richness of amphibians, reptiles, butterflies, birds and mammals.

We are on one of the primary migration routes for birds, the Atlantic flyway.

Migratory birds evolved over millennia to fly long distances in order to make use of many different habitats and the seasonally abundant resources within various climates. Despite this high adaptability, they depend not only on one but all the habitats they occupy, which increases their vulnerability.

Here in NC, in addition to the migration of many small birds like warblers, kinglets, sparrows, and flycatchers, there are spectacular events like the Tundra Swans, Snow Geese, and ducks arriving at Lake Mattamuskeet or Pocosin NWR in the winter. They breed in the Arctic. Or the flocking of Chimney Swifts before they fly south to Peru and Brazil in September. There's a huge flock in downtown Raleigh that you can see swoop down into the large chimneys to roost. I've heard of a flock in Chapel Hill along Franklin Street, also. And I was so thrilled to learn that I can see Common Loons here on lakes and along the ocean in NC in the winter - I learned to love them and their wonderful calls when I lived in MN. Wood Thrush are known as the flutist of the woods. They will be returning from Central America in the spring to breed in NC.

For a spring and fall migrating bird chart for NC:

<http://www.birdnature.com/spnc.html>

Let's watch a 3 1/5 minute video from Pocosin Lake.

[http://www.youtube.com/watch?v=fsY0g\\_sC9is](http://www.youtube.com/watch?v=fsY0g_sC9is)

Any one ever gone to see them?

### **Sharing** (3 min)

What came up for you as you watched them? Why don't you turn to a neighbor sitting next to you and share what you thought or felt as you watched this video.

Anyone want to share with the larger group?

7:55

### **Ethno-ornithology** (10 min)

Do we have any ethno-ornithologists in the room?

Ethno-ornithology is the study of the relationship between people and birds, including cultural beliefs and customs and practical use. Local bird knowledge is now coming to be increasingly acknowledged and valued as an asset for conserving biodiversity.

Because birds and people are closely intertwined. Humans relate to birds as companions and collaborators, and as a source of food, ornaments, magic, and medicine.

Some birds guide the hunter, others bring supernatural messages, or herald the seasons; some indicate by their presence or song where and when to plant crops, or predict floods or rains by their behavior or by a change in tune.

And there is no doubt that human activity, land use changes, pollution, and climate change are affecting bird populations and their ability to successfully migrate.

And, I assert that coming together to help sustain and celebrate the natural wonder of migrations can help connect continents, cultures and peoples.

**FLYWAYS** Last year, the Paul Winter Consort and the Great Rift Orchestra presented Flyways, a celebration of the great bird migration from Africa through the Middle East to Eurasia, using music from cultures over which the birds fly, and interweaving the voices of the birds. I got the theme for this Celebration from his, and want to share with you a few of his videos which capture the great work he is doing, using the celebration to connect us all.

<http://flywaysmusic.org/birds/44-videoslisting/83-flyways-video-and-music-selections>

What is Flyways (0:55 min)

Flyways Motto (0:30 min)

Flyways Music (1.5 min)

**Flyways song** (1.5 min)

If music is the food of love,  
Then I need some.

And if your song can lift me up higher,  
Then sing me one.

And if rhythm is the healing of the nation,  
Then play that drum.

'Cause we've got to find the way, find the way.

Chuck Berry lived 9 yrs with the Shona people in the Zimbabwe before joining Paul Winter in the project. He became expert at the mbira, thumb piano – they called him “gwenyambira – one whose music calls spirits.

Let's replay that, and feel free to get up and dance, sway in place, sing, whatever moves you.

8:05

The Atlantic Flyway encompasses some of the hemisphere's most productive ecosystems, including forests, beaches, and coastal wetlands. (show on flipchart)

Consider how we could celebrate what our flyway birds are bringing us as they pass through NC – what cultures and practices could they connect us with? What borders could they help us overcome?

Anyone have any thoughts, feelings, inspirations they want to share?

8:10

**Sharing Joys and Concerns** (5 min)

Let's take a few minutes to lift up our passions and mission as people of faith for the Earth. If you wish to share something, please stand and after you finish sharing, we will all respond, "We hold you in our hearts."

**For the unspoken joys and concerns, we hold them in our hearts.**

8:15

**To Our Common Cause Response** (4 min)

8:20

**Song:** Migrating Birds Know No Borders

**Commissioning / Sending Forth** (2 min)

**Extinguish the chalice:** As we extinguish the chalice, we bring our minds and hearts together as one as we send out our blessings to each other and to the Earth, water, air, plants, animals and elements – and most especially the birds.

8:30

Please return your feathers!