



## Farnborough Grange Nursery and Infant School – Curriculum Progression

### Science

#### Curriculum Expectations

#### Early Years (Understanding the world)

##### **Birth to three (Development Matters)**

- Explore materials with different properties.
- Explore natural materials, indoors and outside.
- Explore and respond to different natural phenomena in their setting and on trips.

##### **3-4 years old (Development Matters)**

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.
- Talk about what they see, using a wide vocabulary
- Explore how things work.
- Plant seeds and care for growing plants.
- Understand the key features of the life cycle of a plant and an animal.
- Begin to understand the need to respect and care for the natural environment and all living things.
- Explore and talk about different forces they can feel.
- Talk about the differences between materials and changes they notice.

##### **Reception (Development Matters)**

- Explore the natural world around them.
- Describe what they see, hear and feel whilst outside.
- Recognise some environments that are different from the one in which they live.
- Understand the effect of changing seasons on the natural world around them.

##### **Early Learning Goals – end of Reception**

###### The Natural World ELG

- Explore the natural world around them, making observations and drawing pictures of animals and plants
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

#### KS1

##### **Working scientifically**

- Asking simple questions and recognising that they can be answered in different ways
- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions.

##### **Plants**

###### *Year 1:*

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- Identify and describe the basic structure of a variety of common flowering plants, including trees

###### *Year 2:*

- Observe and describe how seeds and bulbs grow into mature plants
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

##### **Animals including humans**

###### *Year 1*

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense

###### *Year 2*

- Notice that animals, including humans, have offspring which grow into adults

- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

**Everyday materials (Year 1 only)**

- Distinguish between an object and the material from which it is made
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- Describe the simple physical properties of a variety of everyday materials
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

**Seasonal changes (Year 1 only)**

- Observe changes across the four seasons
- Observe and describe weather associated with the seasons and how day length varies

**Living things and their habitats (Year 2 only)**

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including microhabitats
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

**Uses of everyday materials (Year 2 only)**

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

## Progression of Skills and Key Vocabulary

	Nursery	Reception	Year 1	Year 2
<b>Working scientifically</b>	<p>Understanding the World</p> <p>30-50 months</p> <ul style="list-style-type: none"> <li>• Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world.</li> <li>• Can talk about some of the things they have observed such as plants, animals, natural and found objects.</li> <li>• Talks about why things happen and how things work.</li> <li>• Developing an understanding of growth, decay and changes over time.</li> <li>• Shows care and concern for living things and the environment</li> </ul> <p>40-60 months</p> <ul style="list-style-type: none"> <li>• Looks closely at similarities, differences, patterns and change</li> </ul>	<p><u><i>(As for Year 1) through provision, focus groups and with adult support, children can...</i></u></p>	<p><u><i>Observing closely</i></u></p> <p><i>-Discuss what they can see, touch, smell, hear or taste</i></p> <p style="text-align: right;"><i>-Use</i></p> <p><i>simple equipment to help them make observations</i></p> <p><u><i>Performing Tests</i></u></p> <ul style="list-style-type: none"> <li>• Perform a simple test</li> <li>• Describe/ explain what they have done</li> </ul> <p><u><i>Identifying and Classifying</i></u></p> <ul style="list-style-type: none"> <li>• Identify and classify things they observe</li> <li>• Think of some questions to ask</li> <li>• Answer some scientific questions</li> <li>• Give a simple reason for their answer</li> <li>• Explain what they have found out</li> </ul> <p><u><i>Recording findings</i></u></p> <ul style="list-style-type: none"> <li>• Show their work using pictures, labels and captions</li> <li>• Record their findings using standard units</li> <li>• Record some information in a chart or table, or using ICT</li> </ul>	<p><u><i>Observing closely</i></u></p> <ul style="list-style-type: none"> <li>• Use - sight, touch, smell, hear or taste to help them answer questions</li> <li>• Use some scientific words to describe what they have seen and measured</li> <li>• Compare several things</li> </ul> <p><u><i>Performing Tests</i></u></p> <ul style="list-style-type: none"> <li>• Carry out a simple <b>fair</b> test</li> <li>• Explain why it might not be fair to compare two things <ul style="list-style-type: none"> <li>• Say whether things happened as they expected</li> </ul> </li> <li>• Suggest how to find things out</li> <li>• Use prompts to find things out</li> </ul> <p><u><i>Identifying and Classifying</i></u></p> <ul style="list-style-type: none"> <li>• Organise things into groups</li> <li>• Find simple patterns (or associations)</li> <li>• Identify animals and plants by a specific criteria, e.g. lay eggs or not; have feathers or not</li> </ul> <p><u><i>Recording findings</i></u></p> <ul style="list-style-type: none"> <li>• Use text, diagrams, pictures, charts, tables to record their observations</li> <li>• Measure using simple equipment</li> </ul>

	<p><i>Plant, animal, look closely, watch, touch, feel, smell, listen, grow</i></p>	<p><i>Science, look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group</i></p>	<p><i>observe, changes, grouping, sorting, compare, same, different, name, measure, data, record, results</i></p> <p><i>picture, tally chart, present, pictogram, Venn diagram, ask questions, test, investigate, explore, equipment</i></p> <p><i>resources, magnifying glass, hand lens, ruler, tape measure, metre stick, spoon, teaspoon, answer questions</i></p> <p><i>pattern, compare, observing over time, classify, research</i></p>	<p><i>patterns, identify (name), record results, drawing conclusions</i></p> <p><i>block chart</i></p> <p><i>pipette, syringe</i></p> <p><i>interpret results, scientific enquiry, pattern seeking, comparative testing, classifying, researching using secondary sources equipment.</i></p>
<p><b>Plants</b></p>	<ul style="list-style-type: none"> <li>• Use the senses in hands-on exploration of natural materials.</li> <li>• Explore collections of materials with similar and/or different properties.</li> <li>• Talk about what they can see, using a wide vocabulary.</li> <li>• Plant seeds and care for growing plants.</li> <li>• Understand the key features of the life cycle of a plant and an animal.</li> <li>• Begin to understand the need to respect and care for the natural environment and all living things.</li> </ul>	<ul style="list-style-type: none"> <li>• Make observations of plants</li> <li>• Know some names of plants, trees and flowers</li> <li>• Name and describe different plants, trees and flowers</li> <li>• Show some care for their world around them</li> </ul>	<ul style="list-style-type: none"> <li>• Describe and name the petals, stem, leaf, bulb, flower, seed, stem and root of a plant</li> <li>• Identify and name a range of common plants and trees</li> <li>• Name the trunk, branches and root of a tree</li> <li>• Discuss what they can see, touch, smell, hear or taste</li> </ul>	<ul style="list-style-type: none"> <li>• Describe what plants need to survive</li> <li>• Observe and describe how seeds and bulbs grow into mature plants</li> <li>• Investigate and describe the impact of removing light, soil or water from a growing or germinating plant.</li> <li>• Observe changes over time.</li> </ul> <p><i>Greater depth:</i></p> <ul style="list-style-type: none"> <li>• Describe what plants need to survive and link it to where they are found</li> <li>• Explain that plants grow and reproduce in different ways</li> </ul>

	<p><i>Plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead,</i></p> <p><i>soil, names of plants they grow</i></p>	<p><i>Flower, tree, plant, fruit, vegetable, grass, garden, bush, herb, names of plants they see</i></p>	<p><b>Names of common plants:</b> <i>wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass.</i></p> <p><b>Name some features of plants:</b> <i>e.g. flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, branch, root, seed, bulb, soil, wild.</i></p> <p><i>Name some common types of plant e.g. sunflower, daffodil.</i></p> <p><i>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area</i></p>	<p><b>Growth of plants:</b> <i>germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling.</i></p> <p><b>Needs of plants:</b> <i>sunlight, nutrition, light, healthy, space, air.</i></p> <p><b>Name different types of plant:</b> <i>e.g. bean plant, cactus.</i></p> <p><i>Names of different habitats: e.g. rainforest, desert.</i></p> <p><i>Light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling</i></p> <p><i>names of plants in local habitats and micro-habitats</i></p>
<p><b>Key Scientists</b></p>			<p>Beatrix Potter (Author &amp; Botanist)</p> <p>Chris Packham (Animal Conservationist)</p>	<p>Agnes Arber (Botanist)</p> <p>Alan Titchmarsh (Botanist &amp; Gardener)</p>

## Animals including humans

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| <ul style="list-style-type: none"> <li>• Understand the key features of the life cycle of a plant and an animal.</li> </ul> | <ul style="list-style-type: none"> <li>• Make comments and ask questions about the place they live or the natural world.</li> <li>• Show care and concern for living things and the environment.</li> <li>• Talk about things they have observed such as plants and animals.</li> <li>• Notice features of objects in their environment.</li> <li>• Comment and ask questions about their familiar world</li> </ul> | <ul style="list-style-type: none"> <li>• Identify some of the differences between different <b>animals</b></li> <li>• Identify living and non-living things</li> <li>• Identify and name a variety of common animals</li> <li>• Describe how an animal is suited to its environment</li> <li>• Explain what they have found out</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>• Identify and classify things they observe</li> <li>• Give a simple reason for their answers</li> <br/> <li>• Name the parts of the <b>human body</b> and link them to their senses</li> <li>• Name the parts of an animal's body</li> <li>• Name a range of domestic animals</li> <li>• Compare the bodies of different animals</li> <li>• Identify and classify things they observe</li> <li>• Give a simple reason for their answers</li> <li>• Talk about what they see, touch, smell, hear or taste</li> </ul> | <ul style="list-style-type: none"> <li>• Describe what <b>animals</b> need to survive</li> <li>• Explain that animals grow and reproduce</li> <li>• Explain why animals have offspring which grow into adults</li> <li>• Describe the life cycle of some living things (e.g. egg, chick, chicken)</li> <li>• Explain the basic needs of animals, including <b>humans</b> for survival (water, food, air)</li> <li>• Describe why exercise, balanced diet and hygiene are important for <b>humans</b></li> <li>• Suggest how to find things out</li> <li>• Use prompts to find things out</li> <li>• Find things out using secondary sources of information</li> <br/> <li><i>Greater Depth</i></li> <li>• Explain that animals reproduce in different ways</li> <li>• Name some characteristics of an animal that help it to live in a particular habitat</li> <li>• Describe what animals need to survive and link this to their habitats</li> </ul> |
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	<p><i>Egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their</i></p> <p><i>young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change,</i></p> <p><i>baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf</i></p>	<p><b>Basic plant and animal names and body parts:</b> <i>body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.</i></p> <p><b>Other:</b> <i>Environment</i></p> <p><i>names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman</i></p>	<p><b>Names of animal groups:</b> <i>fish, amphibians, reptiles, birds, mammals.</i></p> <p><b>Animal diets:</b> <i>carnivore, herbivore, omnivore.</i></p> <p><b>Human and animal body parts:</b> <i>body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.</i></p> <p><b>Human senses:</b> <i>sight, hearing, touch, smell, taste.</i></p> <p><b>Exploring senses:</b> <i>loud, quiet, soft, rough.</i></p> <p><b>Other:</b> <i>human, animal, pet</i></p> <p><i>head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the human body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue</i></p>	<p><b>Being born and growing:</b> <i>Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk. Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck.</i></p> <p><b>Life cycle stages:</b> <i>baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog.</i></p> <p><b>Survival and staying healthy:</b> <i>basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs.</i></p> <p><b>Food groups:</b> <i>fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar.</i></p> <p><i>offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy) living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival</i></p>
<p><b>Key Scientists</b></p>			<p>Chris Packham (Animal Conservationist)</p>	<p>Steve Irwin (Crocodile Hunter)</p> <p>Robert Winston (Human Scientist)</p> <p>Joe Wicks (Personal Trainer)</p>

## Everyday materials

<ul style="list-style-type: none"><li>• Talk about the differences between materials and changes they notice.</li></ul>	<ul style="list-style-type: none"><li>• Ask questions about the place they live.</li><li>• Talk about why things happen and how things work.</li><li>• Discuss the things they have observed such as natural and found objects.</li><li>• Manipulate materials to achieve a planned effect.</li></ul>	<ul style="list-style-type: none"><li>• Distinguish between an object and the material from which it is made</li><li>• Describe materials using their senses, using specific scientific words</li><li>• Explain what material objects are made from</li><li>• Explain why a material might be useful for a specific job</li><li>• Name some different everyday materials, e.g. wood, plastic, metal, water and rock</li><li>• Sort materials into groups by a given criteria</li><li>• Explain how solid shapes can be changed by squashing, bending, twisting and stretching</li><li>• Perform a simple test</li><li>• Tell other people about what they have done</li><li>• Talk about what they smell, hear, see or taste</li><li>• Use simple equipment to help them make observations</li><li>• Identify and classify things they observe</li></ul> <p><i>Greater depth:</i></p> <ul style="list-style-type: none"><li>• Describe things that are similar and different between materials</li><li>• Explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate</li><li>• Explain what happens to certain materials when they are cooled, e.g. jelly, heated chocolate</li></ul>	<ul style="list-style-type: none"><li>• Describe the simple physical properties of a variety of everyday materials</li><li>• Compare and group together a variety of materials based on their simple physical properties</li><li>• Use - see, touch, smell, hear or taste - to help them answer questions</li><li>• Use some scientific words to describe what they have seen and measured</li></ul> <p><i>Greater depth:</i></p> <ul style="list-style-type: none"><li>• Describe the properties of different materials using words like, transparent or opaque, flexible, etc.</li><li>• Sort materials into groups and say why they have sorted them in that way</li><li>• Say which materials are natural and which are man-made</li></ul>
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	<p><i>mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly,</i></p> <p><i>wood, plastic, paper, card, fabric</i></p>	<p><b>Names of materials:</b> <i>wood, plastic, glass, metal, water, rock, paper, card, cardboard, rubber, fabric, ice, water, snow,</i></p> <p><b>Other:</b> <i>Question, why, how, discuss, natural, object, material, frozen, icicle, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid,</i></p> <p><i>strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back</i></p>	<p><b>Names of materials:</b> <i>wood, brick, plastic, glass, metal, water, rock, paper, fabric, elastic, card/ cardboard, rubber, wool, clay, fabric.</i></p> <p><b>Properties of materials:</b> <i>hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, breaks/tears, absorbent, not absorbent, sharp, stiff, see-through/ not see-through.</i></p> <p><b>Other:</b> <i>object.</i></p>	<p><b>Changing shape:</b> <i>squash, bend, twist, stretch.</i></p> <p><b>Properties of materials:</b> <i>e.g. strong, flexible, light, hard-wearing, elastic, opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</i></p> <p><b>Other:</b> <i>suitability, recycle, pollution.</i></p> <ul style="list-style-type: none"> <li>• Explore how the shapes of solid objects can be changed (squashing, bending, twisting, stretching)</li> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses</li> <li>• Organise things into groups</li> <li>• Say whether things happened as they expected</li> </ul> <p>Greater Depth:</p> <ul style="list-style-type: none"> <li>• Explain how materials are changed by heating and cooling</li> <li>• Explain how materials are changed by bending, twisting and stretching</li> <li>• Tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted</li> </ul> <p><b>Changing shape:</b> <i>squash, bend, twist, stretch.</i></p> <p><b>Properties of materials:</b> <i>strong, flexible, light, hard-wearing, elastic.</i></p> <p><b>Other:</b> <i>suitability, recycle, pollution.</i></p>

Key Scientists			William Addis (Toothbrush Inventor) Charles Mackintosh (Waterproof coat) John McAdam (roads)	William Addis (Toothbrush Inventor) Charles Mackintosh (Waterproof coat) John McAdam (roads)
Seasonal changes		<ul style="list-style-type: none"> <li>• Develop an understanding of change.</li> <li>• Observe and explain why certain things may occur (e.g. leaves falling off trees, weather changes).</li> <li>• Look closely at similarities, differences, patterns and change.</li> <li>• Comment and question about the place they live or the natural world.</li> </ul>	<ul style="list-style-type: none"> <li>• Observe changes across the four seasons</li> <li>• Name the four seasons in order</li> <li>• Observe and describe weather associated with the seasons</li> <li>• Observe and describe how day length varies</li> <li>• Talk about what they: see, touch, smell, hear or taste</li> <li>• Use simple equipment to help make observations</li> </ul> <p><b>Greater depth</b></p> <ul style="list-style-type: none"> <li>• Observe features in the environment and explain that these are related to a specific season</li> <li>• Observe and talk about changes in the weather</li> <li>• Talk about weather variation in different parts of the world</li> </ul>	
Key Scientists		<p><b>Seasons:</b> <i>spring, summer, autumn, winter, seasons</i></p> <p><b>Weather:</b> <i>sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers</i></p>	<p><b>Seasons:</b> <i>spring, summer, autumn, winter (previous vocabulary), seasonal change.</i></p> <p><b>Weather:</b> <i>e.g. weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, puddles, rainbow, snow, sleet, frost, ice, fog, cloud, hot/warm, weather forecast.</i></p> <p><b>Measuring weather:</b> <i>temperature, rainfall, wind direction, thermometer, rain gauge.</i></p> <p><b>Day length:</b> <i>night, day, daylight, sunrise, sunset, day length</i></p>	

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Living things and their habitats</p>				<ul style="list-style-type: none"> <li>• Match certain living things to the habitats they are found in</li> <li>• Explain the differences between living and non-living things</li> <li>• Describe some of the life processes common to plants and animals, including humans</li> <li>• Describe how a habitat provides for the basic needs of things living there</li> <li>• Describe how some animals get their food using basic food chains</li> <li>• Describe how plants and animals are suited to their habitat</li> <li>• Find things out using secondary sources of information.</li> <li>• Organise things into groups</li> </ul>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Key Scientists</p>				<p><b>Living or dead:</b> living, dead, never living, not living, alive, never been alive, healthy.</p> <p><b>Habitats including microhabitats:</b> depend, shelter, safety, survive, suited, space, minibeast, air.</p> <p><b>Life processes:</b> movement, sensitivity, growth, reproduction, nutrition, excretion, respiration.</p> <p><b>Food chains:</b> food sources, food, producer, consumer, predator, prey.</p> <p><b>Names of habitats and microhabitats:</b> under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat.</p> <p>Terry Nutkins (TV Presenter)</p> <p>Liz Bonnin (Conservationist)</p>

