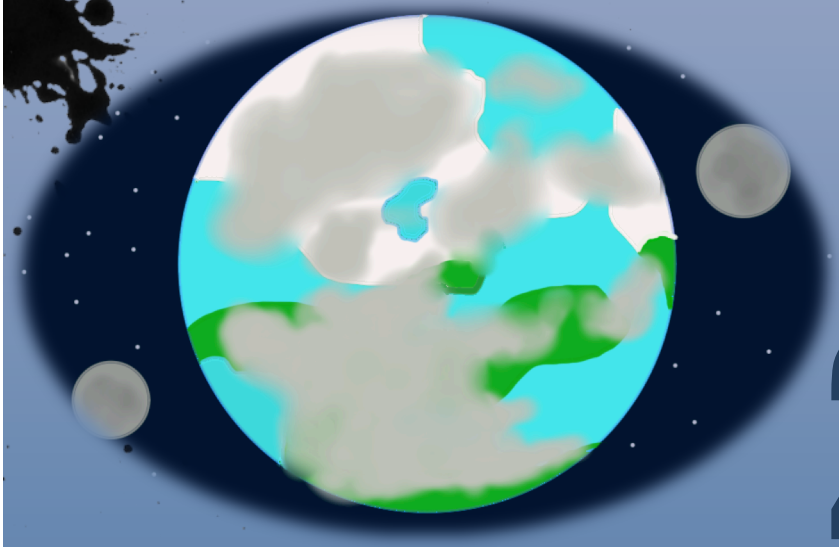
NATIONAL GEOGRAPHIC

Arcealis: The Small Hope of Human and Living Survival

Jesus Maldonado



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Arcealis: The Small Hope of Human Survival

Written article with the help of: Dr. Maldonado

100 light years away from planet Earth, a group of astronomers and astrobiologists have discovered eight new planets with a habitable atmosphere. In the excitement of finding that hope, this group of scientists already had the world-known Mexican ecologist Jesús Marcelo Maldonado hired and ready for action.

After a series of scans and observations led by the ecologist, he has concluded that this curious planet has the environment of what seems like a single biome. Yes, you read us right, a SINGLE biome. Maldonado himself was clearly surprised, as he also declared that this biome is exactly like the type of environment Canada, the Scandinavian countries and Russia were once known for a century and a half ago.

Maldonado has decided to change its numerical name, "Planet 27," to something more interesting. Planet 27 is now known as Arcealis, the combination of Latin and Freek word, "Boreal."

Climate, Environment and Geography on Arcealis

The Calculated Arcealian Year	
Day Length	26 earth hrs
Number of Arcealian Days/month	30 days
Number of Months	14 months
Number of Arcealian Days/year	1200 days

Dr. Maldonado has calculated the common year on the planet based on the speed the planet turns in and the how large its orbit it. Numbers in the chart above are only estimations, until we wait for 1200 years. As a dying race, sadly, we don't have time for that.

Precipitation

The ecologist has also estimated that the planet receives 370-810 mm of precipitation per year the planet receives yearly. This study was completed after a week of scanning the planet for water readings and rain. Not only have we seen a large amount of snowstorms too, but we have also found that the temperature is drastically different in the southern hemisphere than in the northern hemisphere. The northern hemisphere is currently experiencing an intensely cold winter. Meanwhile, the southern hemisphere is experiencing a mostly rainy summer. This caused Dr. Maldonado to eagerly dive into studying Arcealis' climate.

As it turns out, the environment depends heavily on the hemisphere angles. In other words, weather and climate may greatly vary on the seasons.

The Winter on Arcealis

During the winter the temperature ranges from -5°C to -64°C in the hemisphere over all. Yet the temperature depends on the latitude and longitude of a given area in the hemisphere that is experiencing winter. This temperature is of course ignoring the freezing temperatures in the poles, as those can't easily be habitable by humans, unless you are willing to sacrifice your fingers to frostbite. During the winter mostly every centimeter of the landforms on the planet is covered in thick layers of snow.

During the winter, Arcealis only gets an average of 8 hours of daylight each day. Being the fact that it is winter, we infer that on very rare occasions areas get sunlight. It has also been calculated that the average winter usually reaches a maximum of 8 months each year.

Dr. Maldonado has also made a discovery that has clearly explained the reason for an all-world biome. The ocean floor is covered with cracks from which heat escapes the magma layer of the planet's insides. This ensures that the water is very hot and usually evaporates into the sky when it reaches the surface. Given the location of the planet and its orbit, the cold weather and the rain together, head for long and dark winters.

Arcealian Summers

After finishing studying the northern hemisphere for Arcealian winter research, Dr. Maldonado finally moved on to the southern hemisphere.

The temperature there is about twenty degrees hotter than it was up in the northern hemisphere. It usually ranges from 5°C to 28°C. Again, these numbers heavily depend on the latitude and longitude of any specific place in the planet.

The ecologist has also found that the number of daylight hours increased, just as they do on Earth when winter ends. Sun is also much less rare. Summer, is called the growing season. Plants grow the most during this time of year as they receive larger amounts of sunlight and not just frozen water. It has also been recorded that summers take up a minimum of six months a year, unless the planet had a longer winter for some reason.

Earth & Soil

After a series of scans, predictions and even more observations, Dr. Maldonado has discovered that the soil is generally wet and acidic because of the acidic leaves the trees have. Moss is found in various places, but is still rare. Shrubs and berry bushes are very, very common. Humus is not found on the planet at all.

Nutrients are found in some areas where larger amounts of it can be found. These areas are usually found beside the rivers connected to the ocean. The doctor hypothesizes that nutrients flow from the ocean and into the rivers that reach deeper parts of the mainland. With time nutrients will reach the mainland as soon as an excess of nutrients is provided and given to coastal areas and riverside trees. Then, they will be placed within seeds that'll spread into the mainland. The seeds that don't get a chance to grow into trees will be decomposed and the nutrients will be delivered to the soil and given to other trees.

Landforms on Arcealis

Dr. Maldonado discovered that various mountain ranges on the planet. In total, there are nine very large mountain ranges found on the planet, along with various minor ones. Since they are large, the mountain ranges slowly rise to heights. Though when they reach their peak, their height is almost unbelievable. Three mountain peaks that are higher than Mt. Everest have been scanned. Two of these peaks are found in the same northwestern area, yet are part of a different range. A plate border is found in the valley between the two. The other is found a southwestern area and has the lowest peak of the three. Valleys are common between mountain ranges.

Rivers are found all along the plant, along with large marsh islands. There are many lakes as well. Two can be easily spotted from the photos taken by the Khione Orbiter (which was sent some years ago in search for planets that can sustain life), but there are over 100 found randomly on Arcealis.

Who and What will ride the Zoomerang Rocket?

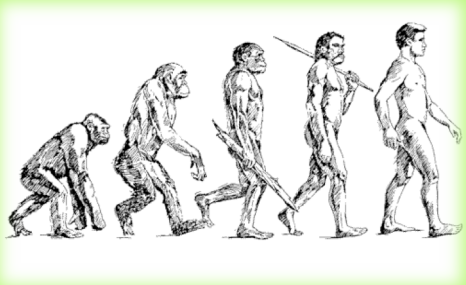
After climate and environment research was completed, Dr. Maldonado moved on to the important decision of choosing who and what will ride the Zoomerang Rocket to Arcealis (which will be launched by this year's October).

Living Things Boarding the Zoomerang Rocket			
	Picture	*Living Thing*	*Niche*
1		Pine Trees (Pinaceae)	Producer

2		Raspberry (Rubus idaeus)	Producer
3		Oak Tree (Quercus)	Producer
4		Red Squirrel (Sciurus vulgaris)	1st Level Consumer
5		Western Moose (Alces alces andersoni)	1st Level Consumer

6		Common Crossbill (Loxia curvirostra)	1st Level Consumer
7		Mountain Hare (Lepus timidus)	1st Level Consumer
8		Grey Wolf (Canis lupus)	2nd Level Consumer
9		Canadian Lynx (Lynx canadensis)	2nd Level Consumer
10		Red Fox (Vulpes Vulpes)	2nd Level Consumer

11		Least Weasel (Mustela nivalis)	2nd Level Consumer
12		Golden Eagle (Aquila chrysaetos)	2nd Level Consumer/Scavenger
13		Dog Flea (Ctenocephalides canis)	Parasite
14		Earthworm (Haplotaxidae Lumbricidae)	Decomposer

15		Humans (Homo Sapiens)	Top Level Consumer

We plan on bringing these specific species' of living things to Arcealis so that the cycle of life can easily and smoothly continue flowing and blend in with the animals already living on the same planet. Yet we still plan on preserving some relationships the animals had on Earth.

Natural Animal Relationships

As to give the animals a natural sensation of a normal cycle once they arrive on Arcealis, they have been matched with certain relationships that give the predator a chance to hunt for food it's used to eating.

Prey/Predator Relationships:

- Grey Wolf preys on the Western Moose
- Red Fox preys on the Red Squirrel

Natural Competition Relationship

On Earth we knew that a lot of animals competed over the same limited amount of food. We chose to have the least weasel added to our list so that it can compete with the least weasel over the red squirrel as a food source. Officially, the red fox competes with the least weasel for the red squirrel.

Symbiosis on Arcealis

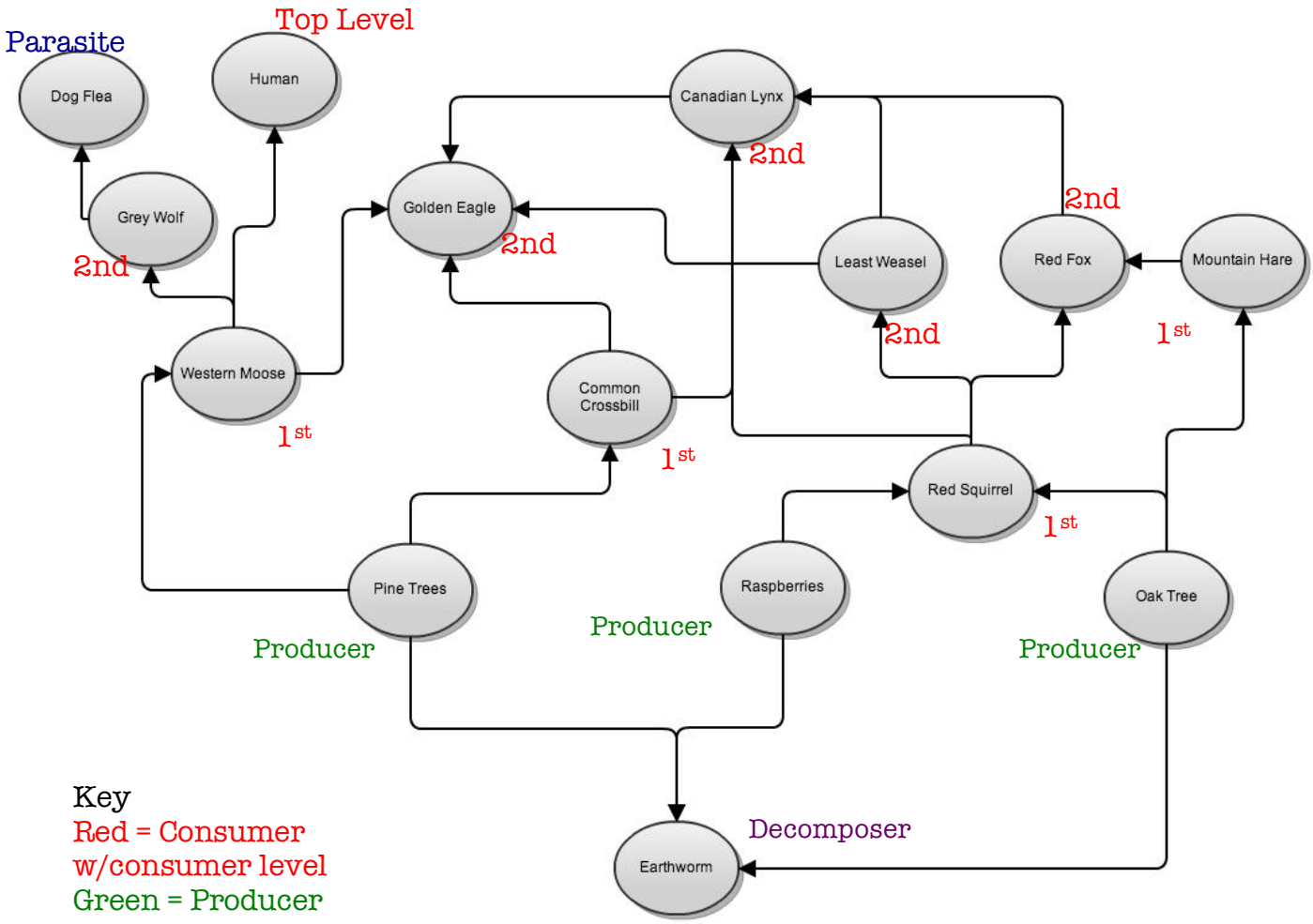
Since we had to control the grey wolf population on Arcealis, we had to add a parasite to our list of living things brought to the planet. We chose the dog flea. The relationship between the grey wolf and the dog flea is considered parasitism. The grey wolf is the host for the dog flea because it gains shelter and food from the grey wolf whilst hurting it.

In order to help spread pine trees in the planet, we added the common crossbill to the list. The relationship between the common crossbill and the pine tree is considered mutualistic because the crossbill gains food from the pine tree

and then digests the food. When the food is digested it usually falls to the ground floor. Seeds cannot be digested, so the seeds have now been spread to somewhere else because of the common crossbill. Both species benefited from each other.

Yet we also benefited from the common crossbill because we gained yet another symbiotic bond. The relationship between the common crossbill and the oak tree is considered commensalism because the common crossbill gains a home while giving nothing back to the oak tree yet the oak tree doesn't mind because the crossbill is not affecting in negatively.

The Food Web of Living Things Taken to Arcealis



Bibliography

Images:

N.d. Photograph. Biology ReferenceWeb. 24 Apr 2013. <http://www.biologyreference.com/Fo-Gr/Forest-Boreal.html>.

raspberry-plant. N.d. Photograph. TAIGA FORUMWeb. 24 Apr 2013. <http://taigaforum.org/tag/raspberry-ketone/>.

Rooke, Hayman. *England's most famous tree*. N.d. Photograph. The Major Oak of Sherwood Forest, England.Web. 24 Apr 2013. <http://www.eyemead.com/majoroak.htm>.

Ryszawa, Pawel. *Red squirrel in Lazienki Park*. 2006. Photograph. Wikimedia CommonsWeb. 24 Apr 2013. <http://commons.wikimedia.org/wiki/File:Red_Squirrel_-_Lazienki.JPG>.

2001. Photograph. Franklin Sun JournalWeb. 24 Apr 2013. <http://www.sunjournal.com/franklin/story/877813>.

Common crossbill. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Common_Crossbill>.

Mountain hare. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Mountain_Hare>.

Grey wolf. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Gray_Wolf>.

Canadian Lynx. N.d. Photograph. New Hampshire AnimalsWeb. 24 Apr 2013. <http://nhanimals.wetpaint.com/page/Team Canadian Lyn&xgt;.

Red fox. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Red_Fo&xgt;.

Weasel. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Least_Weasel>.

Golden Eagle. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Golden_Eagle>.

Dog flea. N.d. Photograph. WikipediaWeb. 24 Apr 2013. <http://en.wikipedia.org/wiki/File:Ctenocephalides-canis.jpg>.

Earthworms. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Lumbricidae>.

Taiga. N.d. Photograph. BBC, London. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/habitats/Taiga>.

Royalty Free Stock Photos: Taiga winter. N.d. Photograph. DreamstimeWeb. 24 Apr 2013. <http://www.dreamstime.com/royalty-free-stock-photos-taiga-winter-image14046748>.

Tek Summer 2. N.d. Photograph. Wild Nature Images, Seward. Web. 25 Apr 2013. <http://www.wildnatureimages.com/Teklanika Summer 2.htm>.

Oslina, Olga. *Photo*. N.d. Photograph. TreehuggerWeb. 25 Apr 2013. <http://www.treehugger.com/natural-sciences/30-fascinating-facts-about-the-boreal-forest.html>.

bobiecayao, . 2012. Graphic. BubblewsWeb. 25 Apr 2013. <http://www.bubblews.com/news/35076-amazing-facts-about-human>.

N.d. Graphic. American Hiking Society, Silver Spring. Web. 25 Apr 2013. <http://www.americanhiking.org/partners/corporate/>.

Information Citations:

"The Taiga or Boreal Forest." Marietta College Department of Biology and Environmental Science's Biomes of the World. N.p.. Web. 16 Apr 2013. <http://www.marietta.edu/~biol/biomes/boreal.htm>.

Woodward, Susan L.. "Boreal Forest (Taiga)." Biomes of the World: Department of Geospatial Science, Radford University. N.p., n.d. Web. 16 Apr 2013. <https://php.radford.edu/~swoodwar/biomes/?page_id=92>.

Ezhiki, . "Taiga." Wikipedia. Wikimedia, 29 Jan 2013. Web. 16 Apr 2013. <http://en.wikipedia.org/wiki/Boreal_forest

I used Wikipedia to gain the basic information then backed it up with the sources above my Wikipedia citation. The last editor of the page was the user Ezhiki who I did background research on (contributor to the article since 2006 and has been editing ever since). It was last edited by a grammar checking bot though, but it doesn't count as it is operated within Wikipedia itself. The article itself can also only be edited by established registered users too (click view source).

"BBC Nature - Red Fox." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Red_Fo&xgt;.

"BBC Nature - Earthworms." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Lumbricidae>.

Quinn, Jason. "Rubus idaeus." *Wikipedia*. Wikimedia, 14 Apr 2013. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Rubus_idaeus>.

Vrenator, . "Western moose." *Wikipedia*. Wikimedia, 30 Oct 2012. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Western_moose>.

"BBC Nature - Grey Wolf." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Gray_Wolf>.

Materialscientist, . "Lynx." *Wikipedia*. Wikimedia, 18 Apr 2013. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Lyn&xgt;.

Niceguyedc, . "Dog Flea." *Wikipedia*. Wikimedia, 17 Apr 2013. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Dog_flea>.

Mariomassone, . "Least weasel." *Wikipedia*. Wikimedia, 9 february 2013. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Least_weasel>.

Innotata, . "Red Crossbill." *Wikipedia*. Wikimedia, 18 Apr 2013. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Red_Crossbill>.

"BBC Nature - Mountain Hare." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Mountain_Hare>.

Lugia2453, . "Oak." *Wikipedia*. Wikimedia, 10 Apr 2013. Web. 24 Apr 2013. <http://en.wikipedia.org/wiki/Oak>.

"BBC Nature - Golden Eagle." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Golden_Eagle>.

"BBC Nature - Common Crosbill." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Common_Crossbill>.

"BBC Nature - Red Squirrel." *BBC*. BBC. Web. 24 Apr 2013. <http://www.bbc.co.uk/nature/life/Red_Squirrel>.