# Madagascar endemism better explained by post-Flood rafting

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The biogeography of Madagascar provides a great opportunity to demonstrate the superiority of the biblical/creation model over the uniformitarian/evolutionary model. Particularly, evolutionists find it impossible to explain the many different kinds of vertebrates found on Madagascar, some of which appear to be more closely related to those in Asia than Africa. According to their models, these animals first evolved millions of years after Madagascar separated from Africa and India, and therefore cannot have been split from their ancestral populations by plate tectonics. Evolutionists themselves will admit that they face seemingly insurmountable difficulties in arguing for the only alternative; this being dispersal across water (via land bridges, 'island hopping', or rafting). Biblical creationists can argue convincingly that plants and animals rafted to Madagascar on massive log/vegetation mats left over from the Genesis Flood. The great diversity of species can be explained by rapid post-Flood diversification.

## Madagascar biogeography

Biogeography is the study of the distribution of plants and animals throughout the world. Other than the straightforward mechanisms of migration, such as birds and bats flying to distant lands with attached seeds, migration over a land bridge, seeds and insects spread by the wind, etc., biogeography is full of mysteries.[1] It is complicated with many variables, unknowns, and preconceived ideas based on one's worldview.

The island of Madagascar off southeast Africa (figure 1) represents the most outrageous example of island endemism. Endemism is the idea that plants and animals are found only in a particular geographical area and not others. Madagascar is the fourth largest island in the world covering about 590,000 $km^2$, slightly larger than France or the state of California. A plateau lies in the centre of the island, at 750–1,500 m above sea level (asl) with a steep escarpment on the east side. The highest peak is Moromokotro at 2,876 m asl. Because of the southeasterly trade winds, the eastern side of the island is a tropical rain forest, while the western side is a tropical savanna. Madagascar is 430 km east of continental Africa. It is separated from the continent by a deep ocean channel, the Mozambique Channel, which is commonly over 2,000 m deep.[2]

## The endemic animals of Madagascar

The animals, both living and as subfossils in the Late Pleistocene and Holocene, on Madagascar are amazing in their isolation; most are exclusive to the island.[3] These include the lemurs, which have diversified into numerous species, some of which are extinct.[4] The percentage of Madagascar land mammals that are unique to the island ranges from 84% to 100%.[5,6] A more recent estimate is 88%.[7] Dwarf hippo bones have been found with likely butcher marks on them with a $^{14}C$ date of about 2,000 years ago (figure 2).[7] Some non-marine invertebrates are highly unique to Madagascar.[8] Certain freshwater fish are also highly unique to Madagascar.[9] Practically all Madagascar amphibians are endemic: "The amphibian fauna of Madagascar is highly exceptional, with more than 99% of the species endemic to this 'micro-continent' and its offshore islands."[10] Madagascar has an incredible diversity of reptiles, more than 90% of which are found only on Madagascar.[11] Birds are species poor and not so unique, but still with 51% found only on Madagascar.[12] Other animals existed on Madagascar from the late Ice Age up to about 2,500 years ago.[13] The bones of the extinct animals, especially lemurs,[14] are not fossilized or permineralized, and man appears to be the reason for these extinctions. I will focus on the endemic mammals and how they arrived on Madagascar, assuming that the same mechanisms would be the cause of endemism in other animals.

## Vicariance rejected because of 'molecular clocks'

The mysterious biota of Madagascar came to the attention of zoologists back in the mid-1800s with the first hypothesis that the animals dispersed across a vast, now destroyed, continent named 'Lemuria'.[15] Then, when plate tectonics was accepted in the 1960s and 1970s, biogeographers thought they had a solution in vicariance when the southern supercontinent, Gondwana, separated into the southern continents we have today. This idea came crashing down when 'molecular clocks', mainly DNA comparisons,

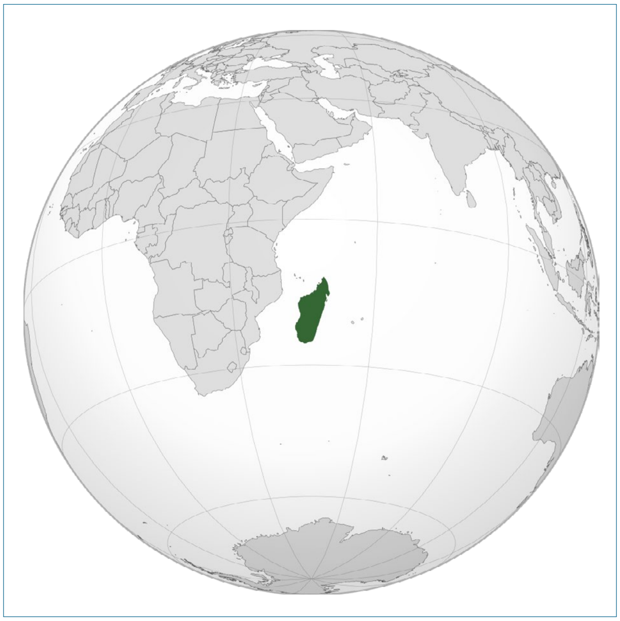



**Figure 1.** The island of Madagascar (green) in relation to Africa

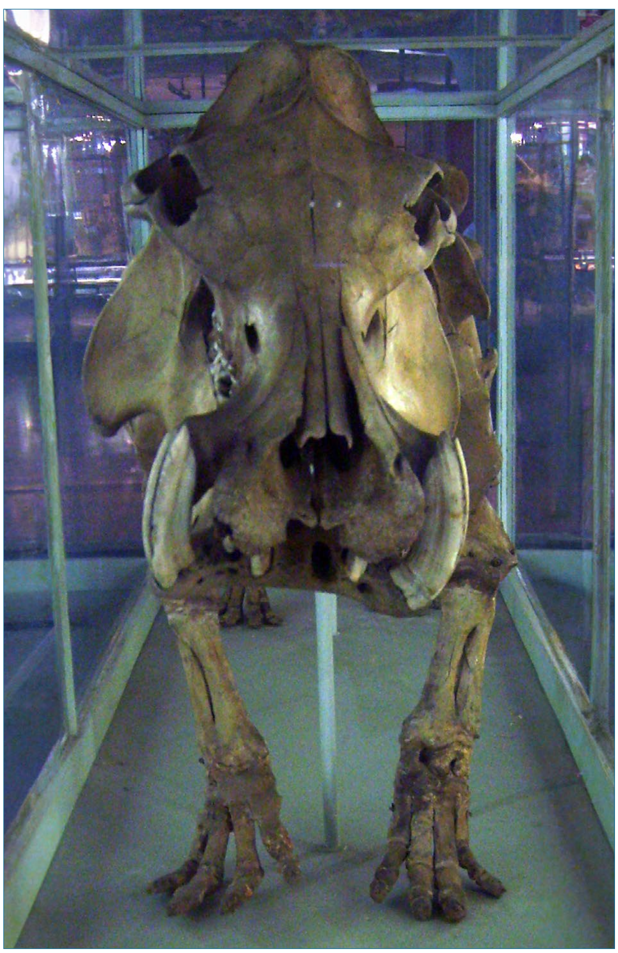



**Figure 2.** Hippopotamus skeleton from Madagascar at the Museum für Naturkunde, Berlin

indicated that most evolution from a common ancestor occurred *after* Madagascar became isolated. It is postulated that Madagascar split from Africa about 160 Ma and from India about 65–80 Ma ago.[16] Others claim the separation from India was 88 Ma ago.[17] So, the last land connection was well before the majority of the animals arrived. The molecular clock timing is claimed to be 18–60 Ma ago, well after Madagascar separated from India.[3]

Molecular clocks are widely used by uniformitarian scientists to estimate the time of origin for almost all organisms. Crottini *et al.* believe these molecular clocks have started to resolve the biogeography of Madagascar, considered one of the greatest mysteries of natural history.[2] These clocks suggest that the Madagascar fauna predominantly originated in Africa and were dispersed by claimed favourable paleocurrents, which would have to have been very different to today's currents, which flow from the east.

These molecular clocks, of course, assume evolution and deep time. They assume that the closeness of the molecular data, mainly the DNA, of two organisms, the closer they are related by a common ancestor. The 'age' of fossils is sometimes used to 'calibrate' molecular clocks.[18]

However, molecular clocks have problems too.[19] Warren *et al*. admit that numerous assumptions attend molecular studies and clocks:

> "The calibration of molecular clocks (or relaxed clocks) is always based on numerous assumptions that may … or may not have been explicitly stated, and may or may not be valid. Therefore, the divergence time estimates they yield should be viewed with caution."[20]

One problem is that different molecular clocks give different divergence times, hampering the exact timing of colonizing. Regardless, molecular clocks conclude that the divergence times of most animals on Madagascar occurred after the island became isolated. Thus, the ancestral animals had to arrive by over-water dispersal 18 to 60 Ma ago and diverged into numerous species and genera on Madagascar.[4] This conclusion is also a global explanation for dispersal:

> "Such conclusions are consistent with a growing body of molecular phylogeographical studies worldwide that support oceanic dispersal rather than vicariance in explaining geographical disturbance."[15]

## Uniformitarian problems with dispersal over water

The rejection of vicariance has caused uniformitarian scientists to look for other solutions; the only one being over-water dispersal, either on long-destroyed land bridges, island hopping, or on vegetation rafts. Island hopping is the idea that animals spread across oceanic barriers by migrating from one island to another across smaller oceanic barriers.

### Problems with land bridges and island hopping

Some biogeographers favour now-sunken land bridges or islands for island hopping. Although most biogeographers believe the animals came from Africa, the closest continent,[21] a few suggest that the animals reached Madagascar and other islands in the western Indian Ocean from India on a series of islands stretching from India to Madagascar when sea level was much lower.[41] There are several island archipelagos in the western Indian Ocean, as well as a few submerged banks such as Saya de Malha and Nazareth, which are about 80 m deep along the route from India to Madagascar. These banks would have been islands during the uniformitarian sea level falls of over 100 m during their multiple ice ages. Still, there would be long stretches of deep water between islands and banks. Warren *et al*. also claim that the bathymetry could have been much shallower in the western Indian Ocean more than 5 Ma ago, which would not only aid island hopping, but also the idea of sunken land bridges.[21] Of course, there is no evidence of this.

In a recent review, Ali and Hedges list numerous problems with the ideas of land bridges and island hopping.[22] They only go into the common belief of origin from Africa, but do not seem to entertain the idea that the majority of the biota could have come from Asia. The most obvious possibility for a land bridge or island hopping is a route across the east–west Comoros Islands archipelago (figure 3). However, it is believed that these volanic islands are too young and the arrival of most vertebrates is considered much older.[23] Ali and Hedges challenge the latest claim of a land bridge or a series of islands on the Davie Fracture Zone that is believed to have stretched from Africa to southwest Madagascar and is claimed to have been exposed three different times in the Cenozoic.[2,24] This fracture zone forms a northwest–southeast ridge over 1,300 km long with segments rising 2,500 m above the floor of the Mozambique Channel to within 500 m of the surface.[2] With briefly lower sea level in the past and/or postulated tectonic uplift, some believe that the islands along the fracture zone would have been either seamounts or atoll crowns that could be used for island hopping. But animals would have found it difficult to survive on these postulated, isolated islands. Besides, there is apparently no evidence for the existence of these ancient atolls. The hippopotamus could not navigate across these deep channels (see below).

There are further problems with island hopping. Regardless of postulated islands along the Davie Fracture Zone, the Mozambique Channel is still deep, even between ‘islands’. Ali and Hedges also state that if land bridges once existed there should be many more animals that migrated from Africa to Madagascar than the ones found there today. Furthermore, some of the endemic fauna should have travelled from Madagascar to Africa, but this is not the case.


Image: United States CIA's World Factbook, Wikimedia / Public Domain

**Figure 3.** The Comoros Islands west of the northern tip of Madagascar

Both sides of the issue are confronted by many animals that could not make it over a land connection: “However, the majority of the species that colonize remote islands are neither migratory, nor nomadic, and do not get there across land-bridges.”[25] One example is the burrowing and blind snakes, small worm-like snakes with reduced vision. They are found not only on Madagascar, but also on the southern landmasses of the former Gondwanaland.[26] Ali and Hedges ‘solve’ the problem by claiming that these snakes evolved early and ended up where they are found by vicariance.[27] However, Vidal *et al.* claim that several overwater dispersals also are required to reach Madagascar, and to spread blind snakes all over the world, a transatlantic journey from Africa to South America must have occurred. One problem is that the snakes, as well as all the present fauna, lack a fossil record to verify their old molecular dates.

## Numerous challenges also for overwater dispersal by vegetation mats

Therefore, overwater dispersal on vegetation rafts seems to be the only way for most of the mystery animals to arrive on Madagascar.[23] This seems to be the consensus view of uniformitarian scientists at the moment.[28,29] But the issue is far from resolution, although Ali and Hedges have high hopes that they have solved the mystery, as they end with, “Hopefully, the analysis presented above brings closure to this matter.”[30]

**Table 1.** Variables listed in Mazza *et al.*[32] for successful rafting

| | |
|---|---|
| **Biological variables** | |
| 1. | Starvation |
| 2. | Dehydration |
| 3. | Temperature and humidity |
| 4. | Salt intake |
| **Vegetation mat characteristics** | |
| 1. | Provide the needed resources |
| 2. | Large enough |
| 3. | Shaped to minimize drag through the water |
| **Physical variables** | |
| 1. | Wind and currents favourable |
| 2. | Problem of ocean eddies |
| 3. | Problem of tsunamis and storms |

Critics of rafting believe the hypothesis is fatally flawed,[31,32] especially because the journey would be too long with a lack of food and water, and there would be a lack of genetic diversity.[33] Of course, at least one male and female must make the journey or a pregnant female. It would be much better for more than one pair to make the journey. Mazza *et al*. list numerous variables that *all* must be satisfied for a successful colonization by rafting, but they can be grouped into three main considerations: biological variables, vegetation mat characteristics, and physical variables (table 1).[32] Nonetheless, these variables do not exhaust the number of challenges.

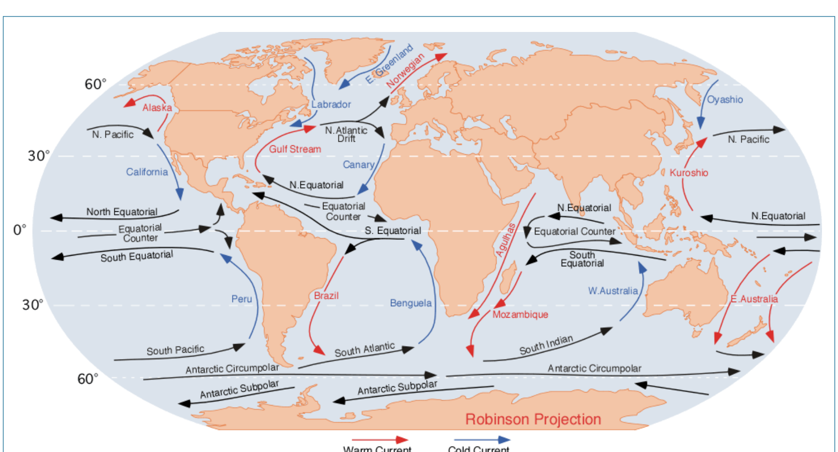


Image: Dr Michael Pidwirny, Wikimedia, Public Domain U.S. Government

**Figure 4.** Surface ocean currents of the world

Just considering the vegetation mat, it must be able to provide enough food and fresh water, be capable of staying afloat until it reaches the new location, and be carried by the right currents. Natural rafts that have all these characteristics have never been observed. It also has been noted that floating islands descending to the ocean from rivers are quickly broken up by waves.[32] If a floating island reached the open ocean, it would not last long. Mazza *et al*. summarize the many difficulties:

> "Nonetheless, given the many complex, intricate and interdependent variables involved in over-sea dispersal of terrestrial mammals, the probability that they could reach remote islands by this means [vegetation rafts] appears vanishingly small."[34]

Ali and Hedges have countered many of these arguments, especially referencing when the animals had one or more characteristics that would aid dispersal, such as small body mass, low energy requirements, and the ability to go into torpor.[23] However, it looks like some large animals must also have been rafted to Madagascar, such as the hippo, which arrived in the late Pleistocene/Holocene. Hippos are notoriously poor swimmers, and their feet make poor paddles. The barrel shape could cause them to roll over, and they cannot cross a channel deeper than 4 m.[25] The hippos would also need 43–72 litres of fresh water per day and are highly sensitive to prolonged exposure to salt water and sunlight.[35] It is unlikely that hippos could have arrived on Madagascar on the puny rafts envisioned by biogeographers.

Moreover, ocean currents are not favourable today (figure 4) and presumably in the Cenozoic, although Ali and Huber believe they were favourable during the Palaeogene.[36] Ali admits that the present currents cannot bring any of the animals from Africa to Madagascar: "it is now almost impossible for adrift mammals to float to the island from Africa, or for that matter any of the other large Indian Ocean landmasses."[37] Animals set adrift on a vegetation mat from Africa would end up on the African coast to the south (figure 4):

> "Our estimates of current and wind trajectories show that the most likely fate for a raft emerging from an estuary on the east coast of Africa is to follow the Mozambique current and become beached back on the African coast."[38]

I do not think there is any evidence for reversed currents in the Palaeogene; it appears to be purely an *ad hoc* hypothesis.

To make matters worse, Ali and Hedges claim that there were *multiple* dispersals by rafts, as if one successful over-water dispersal is not improbable enough.

### A major uniformitarian mystery

Therefore, island endemism on Madagascar represents one of the most difficult enigmas of biogeography. Its origin is "the most difficult enigma in zoological geography" and "one of the greatest unsolved mysteries of natural history."[21] Yoder and Nowak are dismayed: "These biotic enigmas have inspired centuries of speculation relating to the mechanisms by which Madagascar's biota came to reside there."[39] It is a centuries-old debate with a huge literature.

To make matters worse, Madagascar violates a basic rule of island biogeography that islands are largely colonized from the nearest mainland. In the case of Madagascar, however, the biota has a strong Asiatic flavour.[40] India is 3,796 km away, while Africa is only 430 km away. The nearest distance to India compares to the Hawaiian Islands, another huge mystery in which the closest land is 3,675 km away! But winter winds from India point toward Madagascar, and winds and ocean currents at other times of the year generally flow from the east (figure 4).[36]

## Creation science solution

Creation scientists are also challenged by the endemic animals on Madagascar but have additional options that can potentially explain the mystery of Madagascar animals. But one major challenge is that mammals and birds must start from the Ark that landed in the 'mountains of Ararat' and make it to southwest Asia. The fact that the animals seem to have come from Asia and not Africa would support a more direct route from the 'mountains of Ararat'.

But not all Madagascar animals needed to migrate from the Ark. Some semi-aquatic animals may have survived outside the Ark and would not need to have travelled far to make it to Madagascar. It is possible that many amphibians did not need to start from the Ark landing site. Amphibians begin their lives as a larval stage in water, and because of this many amphibians may have survived outside the Ark.[41,42] And some reptiles are aquatic, like tortoises, or semi-aquatic, like crocodiles, so were likely not needed on the Ark to survive.

### Flood and post-Flood fossils on Madagascar

One favourable feature in the biblical model is that we can easily determine the animals that made it to Madagascar by knowing the Flood/post-Flood boundary. This is a problem for other landmasses, such as Australia.[43] All fossils on Madagascar date from the late Pleistocene or Mesozoic: "Reconstructing the temporal pattern of this striking biotic turnover is hampered by the almost complete lack of post-Cretaceous and pre-Pleistocene terrestrial fossil deposits."[44] Masters *et al*. complain, "Deciphering the origins of Madagascar's biota is greatly impeded by the absence of Cenozoic fossils older than 80 ka."[45] They blame it on highly acidic soils. Therefore, the Mesozoic fauna would be from the Flood, and the very late Pleistocene, Holocene, and present-day animals are from the post-Flood period.

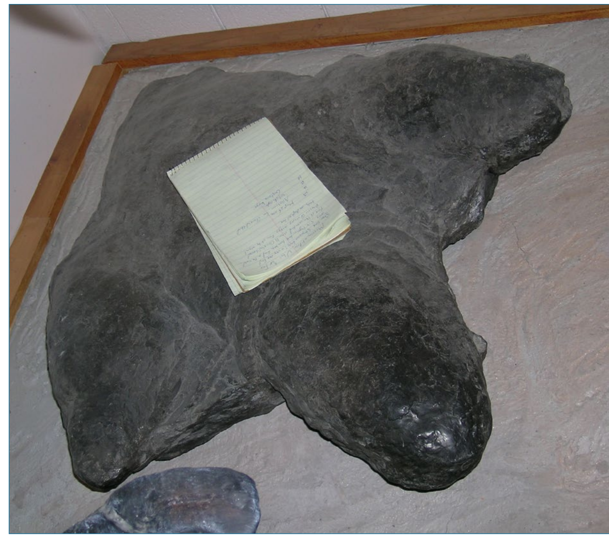

**Figure 5.** A large duck-billed dinosaur track found on top of a coal mine in Utah

### A land bridge or island hopping very unlikely

Post-Flood land bridges and island hopping are very unlikely, even more so than the uniformitarian model. In the biblical model, sea level would have started out 66 m higher than today because there would be no Greenland and Antarctic Ice Sheets.[46] Because of thinner ice sheets during the Ice Age,[47,48] sea level would have dropped to only 50–55 m below that of present day.[49] This is not nearly as low as postulated by uniformitarian scientists in their ice age model. Moreover, lower sea level would have occurred well after the Flood, around 500–700 years after, which would have been too late for animal dispersal.

### Post-Flood log mats vastly superior to uniformitarian vegetation mats

The only option seems to be dispersal on log/vegetation mats. This is a second favourable feature in the biblical model since post-Flood log/vegetation mats, henceforth referred to as 'log mats', would have been much larger than the postulated uniformitarian vegetation mats. Uniformitarian scientists postulate that their vegetation mats would have originated from storms that ripped up vegetation that floated down a river to the ocean; this is fraught with fatal or near-fatal problems (see above). The vegetation mats would be

**Figure 6.** A plant growing from a vertical log. I have also seen them growing on horizontal, floating logs.

inadequate, although uniformitarian scientists have a few examples of successful rafting, but only of small animals. For instance, small lizards swept off Caribbean islands by hurricanes floated over 100 km on vegetation to nearby islands.[50,51]

### Pre-Flood biomass enormous

Creation scientists have difficulty envisioning huge post-Flood log mats, but deductions from the amount of pre-Flood biomass, the potential thickness of the log mats, a few of the animals that would have needed oceanic transport, and modern observations of floating mats can help us understand.

Post-Flood log rafts would have been much larger, and hence more stable, than the small vegetation mats envisioned by uniformitarian scientists.[52–55] The estimated amount of carbon in the pre-Flood biosphere, based on the amount of coal, is about eight times the carbon in the current biosphere.[56] This would mean that the pre-Flood world was rich in trees and plants. As the Flood progresses, more and more of this vegetation is ripped up with much of it floating on the floodwaters. Most of this biomass probably was deposited in the sediments, later becoming coal, but much of it would have continued floating on the post-Flood oceans. Therefore, it is reasonable that the post-Flood log mats would be large and locally thick —thick enough to be stable and likely support a few large animals.

Possible evidence for the existence of post-Flood thick log mats comes from thick, nearly pure, coal seams. Some coal seams can be explained by the beaching of log mats on BEDS (Briefly Exposed Diluvial Sediments),[57] since some coal seams have dinosaur tracks on top (figure 5).[56] Dinosaurs evidently walked on top of the beached vegetation before another rise in the Flood level pinned the vegetation and covered the top with sediments. The fact that some of these coal seams are thick would mean that during the Flood some log mats must have been thick, and hence, by extension, that some post-Flood log mats would have been thick also; for instance, 10 or more metres thick and covering tens of square kilometres. Present day vegetation mats flowing down rivers to the ocean would be mostly broken up by the surf, but post-Flood log mats would not have passed through the surf zone. Such thick log mats would have been capable of transporting a few larger animals, although small animals would be much more favoured.

Post-Flood log mats could float a long time, similar to the numerous logs still floating on Spirit Lake dozens of years after the May 1980 eruption of Mount St Helens. During the first 20 years, it is estimated that about half the Spirit Lake logs sank,[58] but the 'half-life' (the time it would take for half the logs to sink) of Douglas Fir was estimated to be 75 years. After 75 years, half the Douglas Firs would still float; after 150 years, there would be 25% left; and after 225 years, there would be 12.5% left, if the half-life concept still applies after 75 years.

### Some large animals needed to be transported on log mats

It may be difficult to envision how a large animal could possibly walk onto a log mat, and the mat to be stable enough to carry the animal over a long distance. A thick log mat would be more stable and easier to walk on when beached than while floating. Biogeography shows that in some cases large animals would have needed to be rafted.[59] Most of the animals rafted to Madagascar likely were small, but the hippopotamus was not, and there is no other way for this animal to end up on Madagascar, except by rafting. Some of the marsupials rafted to Australia could also have been large.[44] Small ground sloths were rafted to the West Indies,[60] since there does not seem to be any other way for them to have arrived on these isolated islands.

### Modern observations of floating islands

A few observations show that floating islands can occur with live trees and bushes growing:[61]

"Perhaps a more useful model can be drawn from present-day phenomena. Krause (1997a) reviews contemporary reports of floating 'islands' of vegetation, often with standing trees and mammalian inhabitants, observed in remote oceanic locations, tens and hundreds of kilometers from land."[62]

Trees and bushes can even grow on the logs (figure 6). I have seen other bushes growing from horizontal floating logs. This vegetation would provide food for the animals. Numerous insects would still be on the log mats for carnivores to eat. With much more rain during the Ice Age,[50,63] fresh water could have been available, although the log mats were mostly porous. Van Duzer has documented many small floating islands today, sometimes with trees growing on them.[64] A floating island with vertical trees with monkeys has been observed on isolated water bodies adjacent to the Magdalena River of northwest Columbia.[65,66] If such floating islands can occur today on a small scale, is it possible that millions to possibly billions of floating logs could exist right after the Flood?

With vegetation, insects, and microorganisms already repopulating the land masses, the Ark's survivors would have been able to spread rapidly outward from the 'mountains of Ararat'. There would have been a population explosion as a host of new habitats lay open and waiting for residents with few, if any, predators, at least at the beginning. If log mats temporarily beached in coastal areas, some animals could have unknowingly climbed onto the log mats and been carried across seas and oceans to islands or other continents after the log mat broke free of the land (figure 7). Shorelines with significant tides would have been good candidates for temporary grounding of mats. And if ocean currents were somewhat similar to today in the Indian Ocean, currents from India would have favoured dispersal to Madagascar (figure 4).

## Diversification of Ark kinds causes island endemism

Another favourable feature of the biblical model is that creation scientists can also explain rapid formation of endemic animals on Madagascar and other isolated islands, based on the diversification of the Ark kinds. These kinds would have had great potential to diversify, since God no doubt would have picked pairs with such potential. Observations on the Galápagos Islands indicate that diversification can occur rapidly.[67] This is illustrated by the creation orchard of life (figure 8). It is the Ark kinds that spread all over the earth,[68,69] and depending upon the level of the kinds with respect to the biological classification system, endemism can occur where the animals land and diversify over time.

Endemism on Madagascar can be at the species, genus, family, or order level, or within the subdivisions of this classification, such as superfamily, infraorder, etc. It makes a difference whether the endemism is at the species/genus level or the family/order level, since baraminologists estimate the average Ark kind at the family level.[54] It is well known that many species can interbreed, so the boundaries of the kind are almost always at a higher taxonomic level. One taxonomical problem is that the definition of a species is subjective and unknown in many instances:

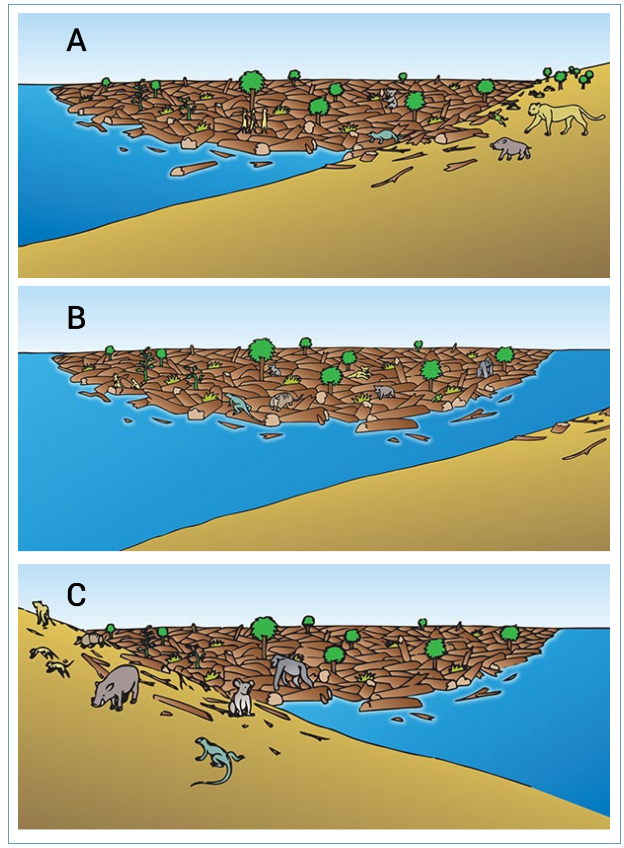


**Figure 7.** Schematic of a log mat beached on one landmass (A), floating away with animals on top (B), and ending up on another landmass (C) (drawn by Keaton Halley).

"However, it can be challenging to determine whether island forms are sufficiently distinct from one another and/or from mainland forms, to justify being designated as separate species. … There are in fact numerous operational definitions of the species unit. Singh (2012) lists 23 species concepts, while Lomolino *et al.* (2017) pick out six. … Traditionally, morphology was the principal basis for species recognition. … Hence, there can be uncertainty as to what constitutes a species."[70]

The same can likely be said for the genus and family levels, also, which is one reason that creation scientists believe the kind averages at the family level.

This means that if endemism is only at the species/genus level, but not at the family level, a particular family

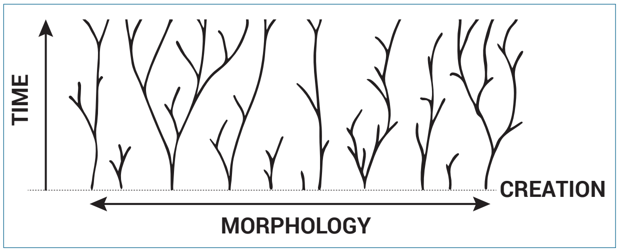


**Figure 8.** The creation orchard of life



**Figure 9.** A taxidermy mount of a tenrec from the Horniman Museum and Gardens, London



**Figure 10.** Madagascar giant rat *Hypogeomys antimena* from subfamily Nesomyinae in the Bristol Zoo, England

could have spread from the Ark, hopped on a log mat, and diversified into different genera and species after the log mat arrived on the new land. Any species or genus level endemism from this particular family would be no big deal on Madagascar or anywhere. On the other hand, if the endemism is at a higher level on Madagascar, then it would appear that a particular Ark kind made it to Madagascar and nowhere else, and from there diversified into various species, genera, or even families. This is not evolution, or even microevolution, but diversification of Ark kinds from the variety already built in.

### Analysis of mammal diversification in Madagascar

Madagascar diversification can be illustrated by the endemic mammals. There are four major types of mammals on Madagascar: (1) euplerid carnivores, (2) lemurs, (3) tenrecs, and (4) nesomyine rodents. This does not include the hippopotamus. The original mammals that landed on Madagascar would have been able to easily diversify because of the extremely variable habitats on the island,[29] and the inbuilt capacity for variation that God programmed into plants and animals at creation.

Euplerid carnivores, the mongooses, have been organized into ten species and seven genera that are endemic at the family level.[71] However, another compilation has only seven species in six genera, indicating problems in taxonomy.[72] It is interesting that the euplerid carnivores belong to the suborder Feliformia and, according to the Paleobiology Database (PBDB), have numerous representatives on all continents, except Antarctica, in the Paleogene and Neogene. So, it is unlikely that the Madagascar mongooses represent one Ark kind at the family level. Regardless, one member of the suborder made it to Madagascar and diversified.

One classification has five endemic lemur families within the superfamily Lemuroidea of the primate order that represent 67 species on Madagascar (figure 2).[73] However, if we go to the next taxonomic level, the infraorder Lemuriformes, there is one fossil claimed in the Fayum of northeast Egypt, but many of the Fayum mammals are mainly teeth[74] and the claim may be spurious. It is interesting that the latest Wikipedia entry has eight lemur families, emphasizing taxonomic issues. Regardless, the superfamily Lemuroidea may be the Ark kind, which made it only to Madagascar.

Tenrecs, shrew-like mammals (figure 9), are endemic on Madagascar but only at the genus level. The family Tenrecidae occurs at other locations in southwest Africa. So, as shrews spread and diversified from the Mountains of Ararat, one particular family or subfamily, the tenrecs, arrived on Madagascar and continued to diversify into various genera and species.

The nesomyine rodents (figure 10) come from the subfamily Nesomyinae with nine genera[75] endemic to Madagascar, while the PBDB shows that the family Nesomyidae occur over Africa with one location in Spain. These rodents have been placed in the superfamily Muroidea, which has a wide distribution on the earth. The Ark kind for these rodents must have been at a higher taxonomic level than the subfamily Nesomyinae, which would have been the particular rodent or group of rodents to end up on Madagascar.

Within the biblical model, God created each kind of animal and plant with the internal potential to diversify into varieties within the kind. The biological classification system definitions seem arbitrary and subjective in some cases.[76] The age and even the location of a fossil is considered a taxonomic variable, which would result in differently named animals. I have witnessed such variability in the taxonomy of organisms in the Paleobiology Database.[77] Ali and Vences comment that "An obvious limitation to ALTS is the fact that it is based on taxonomic information, which is an imperfect representation of evolutionary history and age."[78] They then give the example of changing classification of certain frogs on the Seychelles Islands and skinks over the world.

## Conclusions

The numerous endemic animals on Madagascar represent a major uniformitarian mystery. Vicariance has been rejected, leaving dispersal as the only mechanism. One group of researchers shows that dispersal by land bridges or island hopping is very unlikely, if not impossible, while another group lists numerous reasons to reject dispersal on vegetation mats. It does not appear that any uniformitarian mechanism can explain this mystery.

But creation scientists have more options. First, we can determine what animals were dispersed, and that most dispersal to remote islands must have been on thick log/vegetation mats that would be much larger than uniformitarian vegetation mats. The ancestors of the Madagascar fauna likely arrived from Asia, not Africa, as some uniformitarian scientists believe.[33,79] This deduction is reinforced by the fact that no Madagascar endemic vertebrates are found on Africa.[23] The animals must have quickly migrated to southwest Asia from the 'mountains of Ararat', although some Madagascar amphibians and reptiles may not have originated from the Ark. Ocean currents would also favour an origin from India. With the creation orchard of life, we can understand how certain unique animals, whether an Ark kind or not, made it to Madagascar and rapidly diversified into various endemic species, genera, and even families. With very thick and extensive post-Flood log mats, creation scientists have the potential to explain the mysteries of biogeography for not only Madagascar, but also other continents and isolated islands, and even for the most remote islands of Hawaii.

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