

Ecosystem

written by Chris Schubert on January 29, 2003

Red Colony's definition of terraforming is to transform a planet without life into a planet that can sustain plants and animals on the surface. But it is not enough to just be able to sustain living organisms on the surface. We need an ecological community together with its environment, functioning as a unit. We need an ecosystem.

Some people may believe that "Mother Mars" would take care of that herself. But we are creating Mother Mars, instead of Mother Earth creating us as it was on Earth. There needs to be the correct balance of creatures, insects, and plants introduced to Mars or catastrophe would strike.

The wrong insect could devour entire crops of the Genetically Modified (GM) lichen. The wrong herbivore could do the same. The wrong plants could choke out all other forms of life. And the incorrect predator could run rampant all over the surface and devour all the other creatures.

The same problems not only occur on the land, but in the seas that are sure to be there once it is fully terraformed. The sea has just as much need for an ecosystem as the surface. The wrong marine animal released could mean catastrophe. There needs to be a balance.

When we are choosing and releasing the Lichen onto the Martian Surface we must carefully plot out the future ecosystem. If plants already dominate the surface in no organized fashion, choking off the possibility for other forms of life to survive we are in trouble. So, when genetically modifying the lichen, we must instill a suicide gene into its genetic make-up. This gene will curb proliferation of the lichen, and not allow it to dominate the entire planet.

The earliest form of creature life will be insects. They will as on Earth quickly outnumber us in population. We must be sure that these insects do not pose any kind of threat to human kind, they will be herbivores feeding on the lichen. The major problem with this is they might eat the entire lichen population. At this time we can start to release lichen without the suicide gene.

Now the lichen and insects are in proper balance with the absence of the suicide gene in the new lichen generation, there needs to be something to counteract the growth of the insects, and fast. Large genetically modified birds will eat the insects. They will need to be modified to be able to live in the low air pressure. Predator birds will in turn eat these birds, and the predator birds population will be kept in check by some form of small ground creature, that will eat the birds' eggs. These small animals, most likely lizards, will be eaten by a slightly larger mammal, such as an arctic coyote. This chain will continue for sometime until we get to a dominant predator. Which humans will keep in a balance. Not by hunting but, maybe be engineered to have a short life span. Decomposers will break down the bodies of the animals and fertilize the soil for lichen and/or plants to grow.

This was only one example of a food chain using its first consumer as an insect, there can be others that start with small shrews. In the sea it can start with plankton and so on.

As these food chains continue, we must work to keep them in equilibrium. It must be a thoroughly thought out process. The ecosystem must be complete, or else the entire thing could collapse. In different regions different species will be released. For example the marine life in a possible Hellas Sea would not be the same as a probable Northern Sea. Evolution will take part in this stage, changing and adapting the animals to their regions and environments. We can only hope that anything we leave out will take place on its own, as not to hurt the ecosystem.

Humans have to start and maintain the process, hopefully one day we can rest assured that "Mother Mars"

knows best.