MEMO

To: Dr. Gary Christopherson & Ms. Joan Weed, District Ranger

From: Ian Forsyth, GS-7, Coronado National Forest Service

Subject: Recommended approach for *Lepus octopedis* habitat

As you know, *L. octopedis* is a genetically engineered species that requires specific conditions to thrive. Given the information that was provided to me by the Forest Service, I was tasked with determining the appropriate territories that this creature might be relocated to. You will find that the allotments outlined below meet the criteria to sustain the development of this species based on the constraints that were provided.

These constraints included:

* sufficient water source(s) within 3 square kilometers in or around the allotment that do not fall on private property
* semi-arid mixed grasslands for feeding and habitat development
* avoidance of mixed pine, pinyon-juniper, and ponderosa pine areas
* appropriate distance from known predator holdings

With these in mind, the allotments I believe are the most considerate of these criteria are the ones shown in the darkest shade of green. They are represented by a value of 1, on an ordinal scale of 1-5, with 5 being the least suitable.

This ordinal scale is supported by the following matrix:

**Predator Density Rank**

|  |  |  |  |
| --- | --- | --- | --- |
| **Veg Rank** | **1** | **2** | **3** |
| **1** | **1** | **2** | **3** |
| **2** | **2** | **3** | **4** |
| **3** | **3** | **4** | **5** |

With the rank of optimal vegetation areas being the column on the left, and predator density levels along the top, we can interpret this matrix on our 1-5 scale. With 1 indicating the best possible combination, we see that our 1 value is equally optimal for feeding grounds, and low in predator density. As it was stated above, 1 is represented by a dark green, and 5 is a lighter green, which actually does not appear on our map. There were no areas where the suitability was that low. There was, however, a decent amount of land for which no data was available and was ruled out as an option.

When creating this model, I used the ArcGIS Pro software to build and develop it around the needs of *L. octopedis.* Building the model is essentially replicating the constraints that were provided in the setting of ArcGIS to create a visual representation of those suitable areas. Manually creating the environments is done by visually analyzing the map(s) provided and inputting the appropriate tools to create such a model. By combining all of these things, our final output is the Suitability Model map that is presented in the attached folder.