

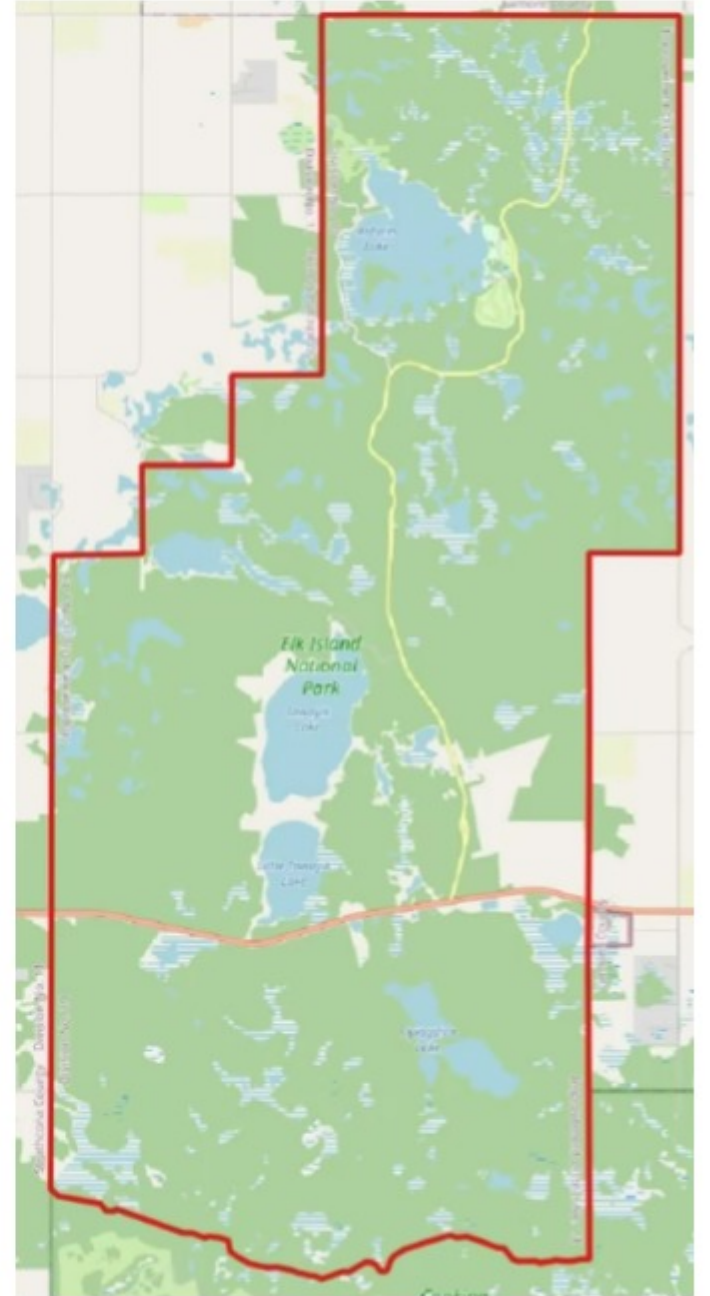
# **Project I**

# **Elk Island National Park**

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# Elk Island National Park

- Canadian National Park
- 194 km<sup>2</sup> area
- approx. 400,000 visitors annually
- home to over 42 species of mammals
- especially bison and moose



# Bison, Elk, Moose



<https://exploredmonton.com/attractions-and-experiences/elk-island-national-park>



<https://naturealberta.ca/volunteer-with-friends-of-elk-island-society/>



<https://cdn.britannica.com/03/94603-050-D74D3709/elk-American-Yellowstone-National-Park-Wyoming.jpg><https://www.treehugger.com/moose-facts-5074548>

# Goals of the Project

- Simulate animal behaviour in the park to be able to react better to situations
- Determination of the carrying capacity

# Agents

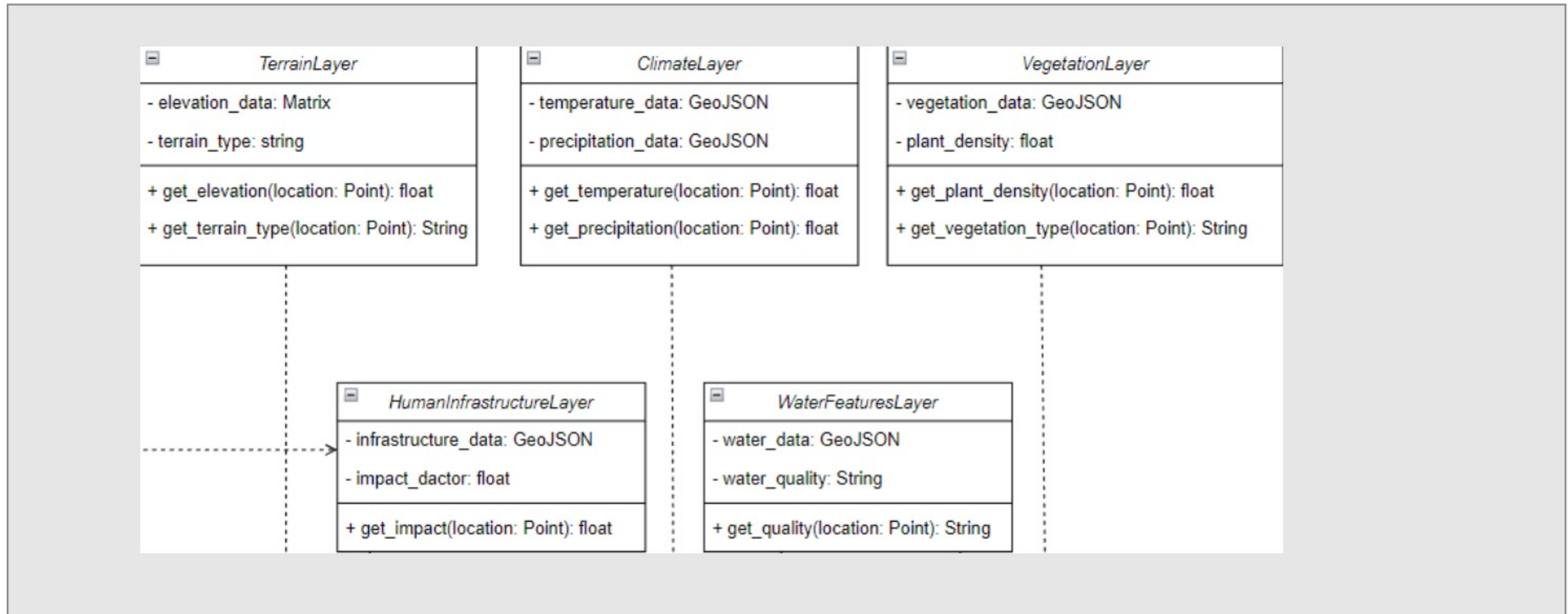
```
BisonAgent  
- hydration: double  
- satiety: double  
- hoursWithoutWater: int  
- hoursWithoutFood: int  
- isAlive: bool  
- private int dailyEatingHours;  
  
+ give_birth(): BisonAgent  
+ mate(partner:BisonAgent): BisonAg  
+ graze(): void  
+ tick(): void  
+ moveToWatersource(): void  
+ UpdateDailyEatingHours(): void  
+CheckSurvival (): void  
+DoRandomWalk (): void  
+ MoveTowardsGrazingArea (): void
```

```
ElkAgent  
- antler_size: float  
- herd_leader: boolean  
  
+ graze(): void  
+ mate(partner:ElkAgent): ElkAgent  
+ give_birth(): ElkAgent  
+ tick(): void  
+ moveToWatersource(): void
```

```
MooseAgent  
- antler_size: float  
- long_legs: boolean  
  
+ browse(): void  
+ mate(partner:MooseAgent): MosseAgent  
+ give_birth(): MooseAgent  
+ graze(): void  
+ tick(): void  
+ moveToWatersource(): void
```

full version: [https://github.com/Red-Sigma/proj-ki-geo/blob/main/design/elk\\_islan\\_np.drawio](https://github.com/Red-Sigma/proj-ki-geo/blob/main/design/elk_islan_np.drawio)

# Layers



full version: [https://github.com/Red-Sigma/proj-ki-geo/blob/main/design/elk\\_islan\\_np.drawio](https://github.com/Red-Sigma/proj-ki-geo/blob/main/design/elk_islan_np.drawio)

# Tools and Tech

