

⑤ (田村班)

A study on factors of increase and decrease of *trapella sinensise oliver* and research on conservation methods.

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### **Abstract**

In a previous study we investigated population changes of species in Tatsuno pond habitats that may affect survival of the endangered aquatic plant Hishimodoki. We found that crayfish cause significant damage to Hishimodoki and therefore investigated local invasive American crayfish populations. We attempted to protect Hishimodoki from invasive crayfish by creating barriers, but this was ineffective.

### **Theory and Experiment**

Based on past photographs of the native habitat and data on the number of individual crayfish caught, we predicted changes in the native habitat of the Hishimodoki and invasive species. Environmental DNA surveys and visual inspections were conducted to investigate organisms living in their current native habitats, and experiments were conducted in the laboratory to visualize the effects of American crayfish on Hishimodoki. We also created barriers to try to protect the Hishimodoki from the American crayfish.

#### **1.Result 1**

It was found that the increase and decrease in the population of the Hishimodoki was due to the change in the population of the American crayfish. It was uncertain if this was because of the small population of American crayfish in their native habitat, or because of the effect of the barrier.

#### **2.Re-experiment**

In further experiments, we put Hishimodoki, American crayfish, and barriers in a tank and investigated whether the barriers could be used to protect Hishimodoki from American crayfish.

#### **3.Result 2**

The effect of the barrier was uncertain due to the small sample size of crayfish.

#### **4.Conclusion**

Currently, the population of American crayfish is small, and the population of the Hishimodoki will not decrease suddenly, but it is necessary to exterminate invasive species and observe the population of the crayfish. The barriers used against American crayfish are likely to be ineffective and need to be improved.

#### **5.References**

Taguti M.2023. Records of Hisimodoki Conservation Work Hyogo Prefectural 2019「たつの市の絶滅危惧種ヒシモドキの不思議」共生のひろば No.14

#### **6.Key words**

Hisimodoki American Crayfish Environmental DNA