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Session A, 2015 Second Place: The Art of War Against Tabanidae, a Survey of Tabanidae at the Cranberry Lake Biological Station

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THE ART OF WAR AGAINST TABANIDAE

A SURVEY OF TABANIDAE AT THE CRANBERRY LAKE BIOLOGICAL STATION

Nate Morse, Chelsie Beard, and Macie Edwards



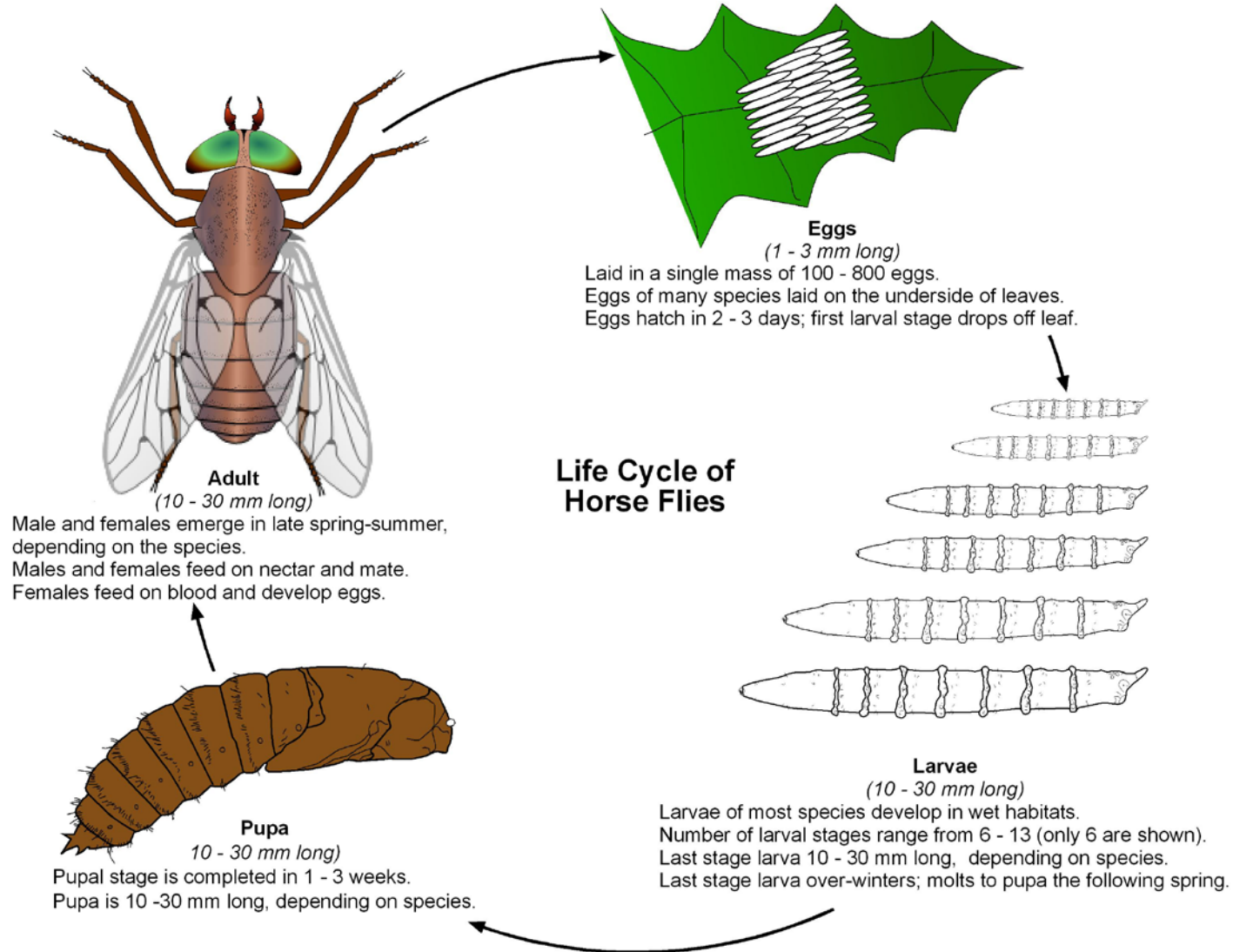
State University of New York
College of Environmental Science and Forestry



Photos courtesy of Macie Edwards, Marion Friedrich, Nate Morse (respectively)



KNOW THY ENEMY



Over 4000 species of
tabanidae

REASON FOR WAR

- Female tabanids need a blood meal for their egg production (Herczeg, 2015)

VS

- Blood borne diseases
- Milk production
- Animal stress (Baldacchino, 2014)
- Annoying



KNOW THY ENEMY

- Active from 0700 h to 1900 h (est)
- Most active 89.6° F and 35% humidity (Herczeg, 2015)



THE BLUE CUP HYPOTHESIS



HYPOTHESES

- Hypothesis 1 - More adult Tabanidae will be found at Forsaith Bog than Sucker Brook.
- Hypothesis 2 - Tabanid activity is influenced by temperature, humidity, and time of day, peaking between the hours of 12:00-13:00.
- Hypothesis 3 - There will be a negative correlation between tree branch height and number of egg clutches found on that branch.

BATTLE GROUNDS



Photo courtesy of Google maps

THE PLAN OF ATTACK



• Malaise trap

• Photo courtesy of Macie Edwards

THE PLAN OF ATTACK

KILL THE OFFSPRING

Egg search



VARIABLES

- Weather
- Weather
- oh and Weather
- Location, location, location

TABANID ACTIVITY

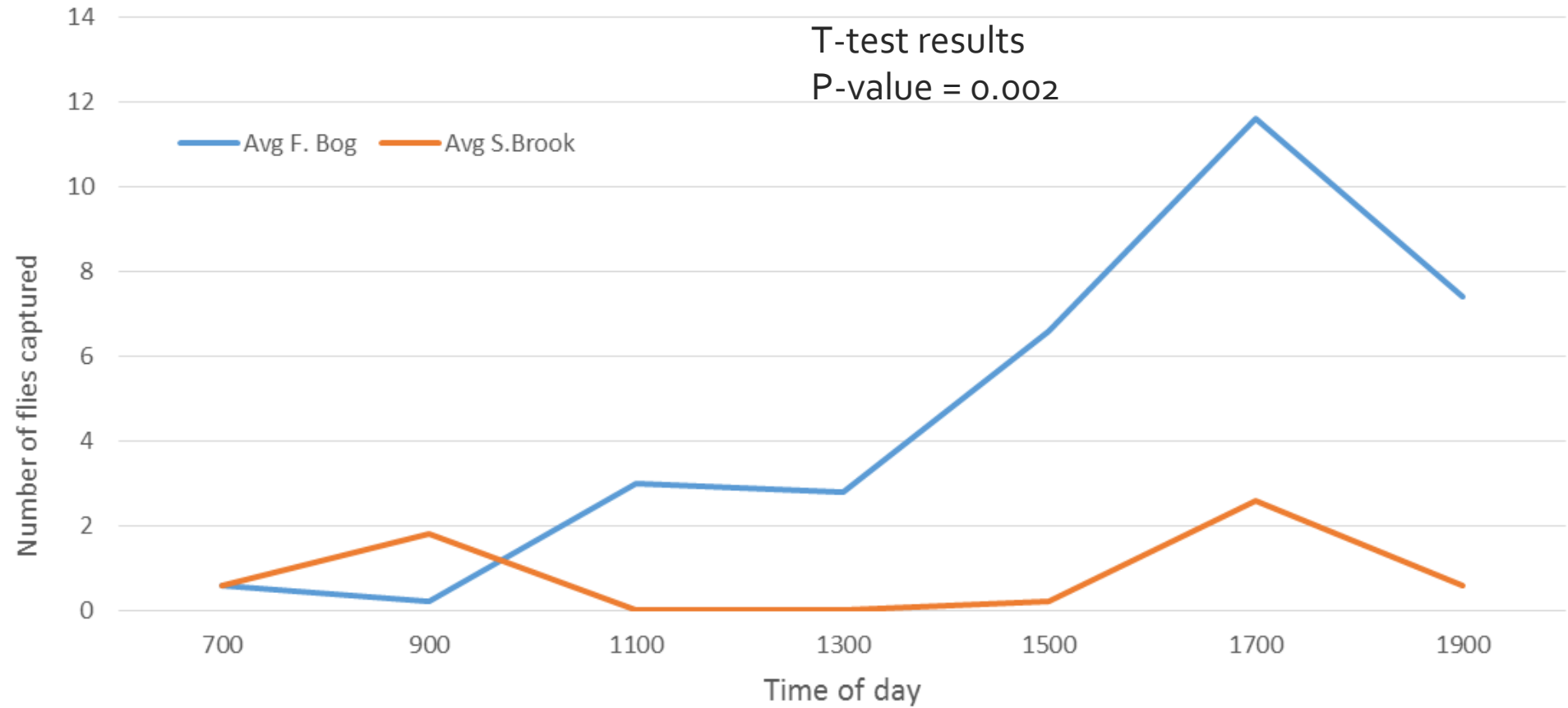


Fig 1. Average tabanid activity over a 12 hour period at Forsaith's Bog and Sucker Brook at Cranberry Lake Biological Station

TEMPERATURE AND HUMIDITY

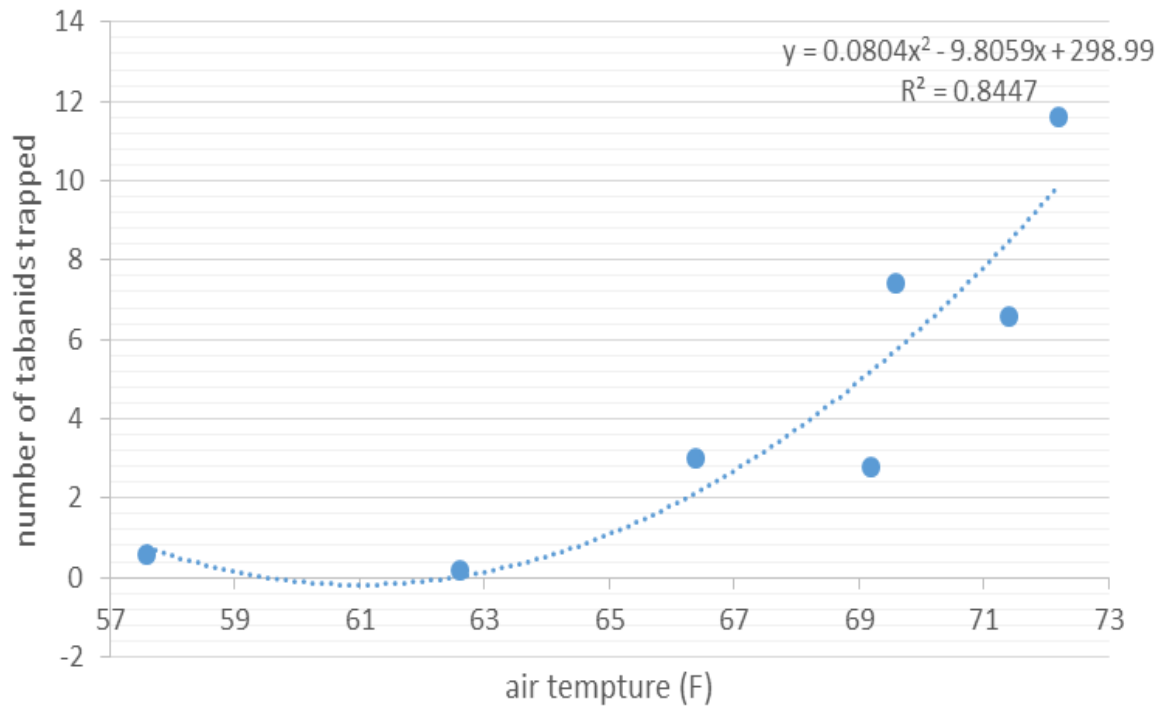


Figure 2: Effect of air temperature on tabanid activity, recorded every two hours over twelve hour period for five days.

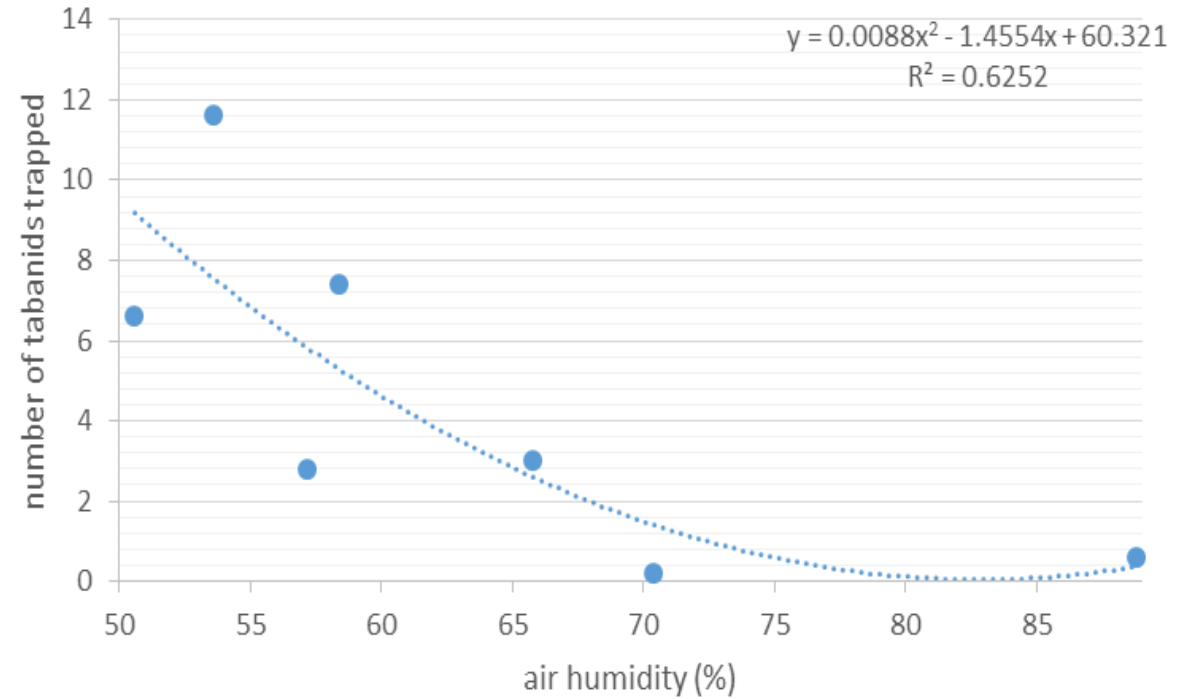
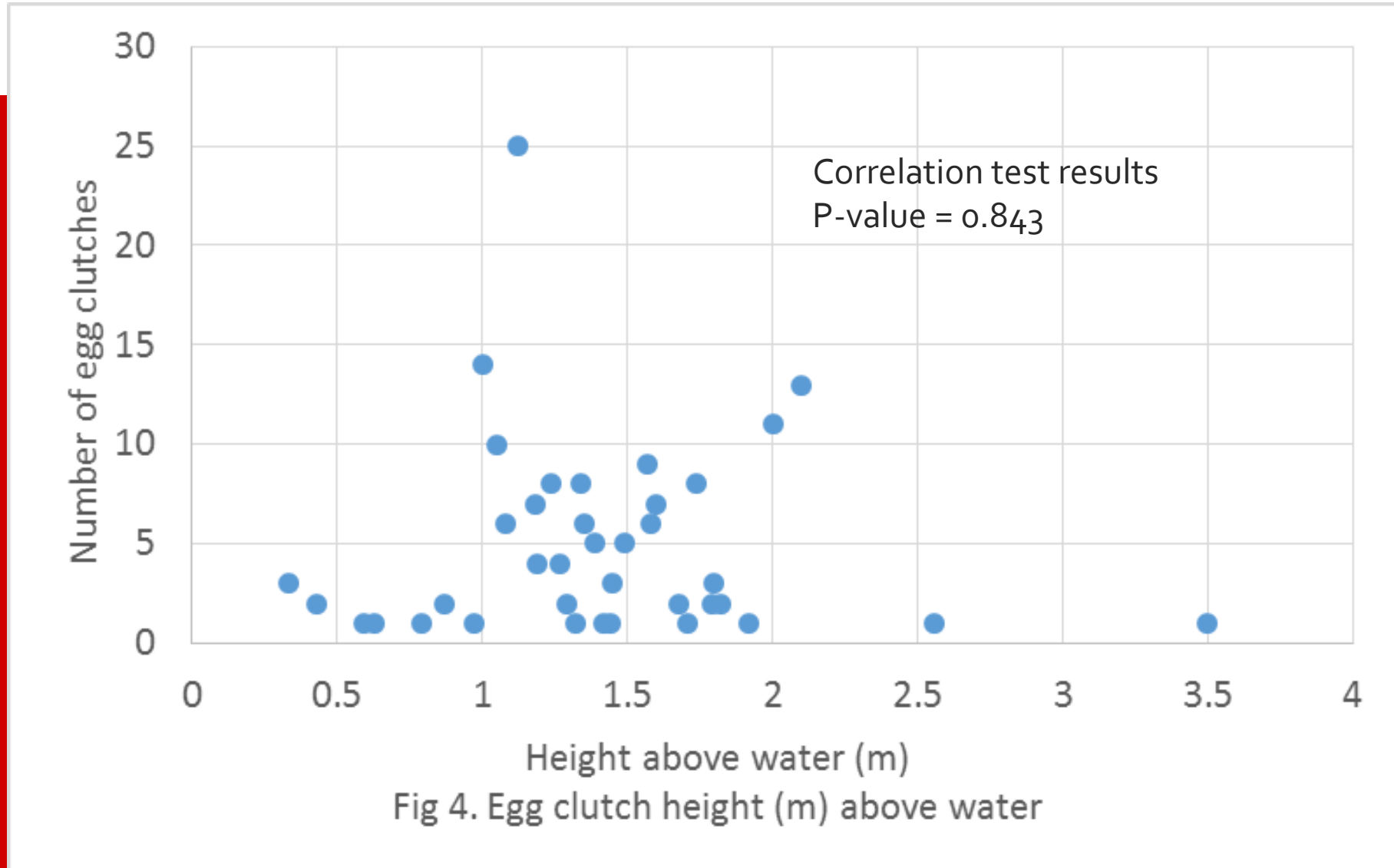


Figure 3: Effect of air humidity on tabanid activity, recorded every two hours over twelve hour period for five days.

EGG CLUTCH COUNT



CONCLUSIONS

- Blue cup not effective
- Most active at higher temps and low humidity
- Prefer stagnant over fast moving waters
- They tend to lay their eggs between 1.0 – 2.0 meters above the water in Yellow birch and Red maple saplings

FUTURE STUDIES

- Physical
 - Nzi trap
- Biological
 - Horse guard wasp
 - Sand wasp



• Photo courtesy of Rincon-Vitova Insectaries

REFERENCES AND ACKNOWLEDGMENTS

- Justin Fiene

- Melissa Fierke

- Chris Foelker

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A man with short blonde hair, wearing a light blue short-sleeved shirt and dark pants, stands in a dense forest. He is holding a small, round, reddish-brown object in his right hand. The forest is filled with various green plants and trees, and a large, dark rock is visible behind him. The lighting is bright, suggesting a sunny day.

Questions?

Nope