Reliable post-fire regeneration of *Pinus sabiniana* (gray pine)

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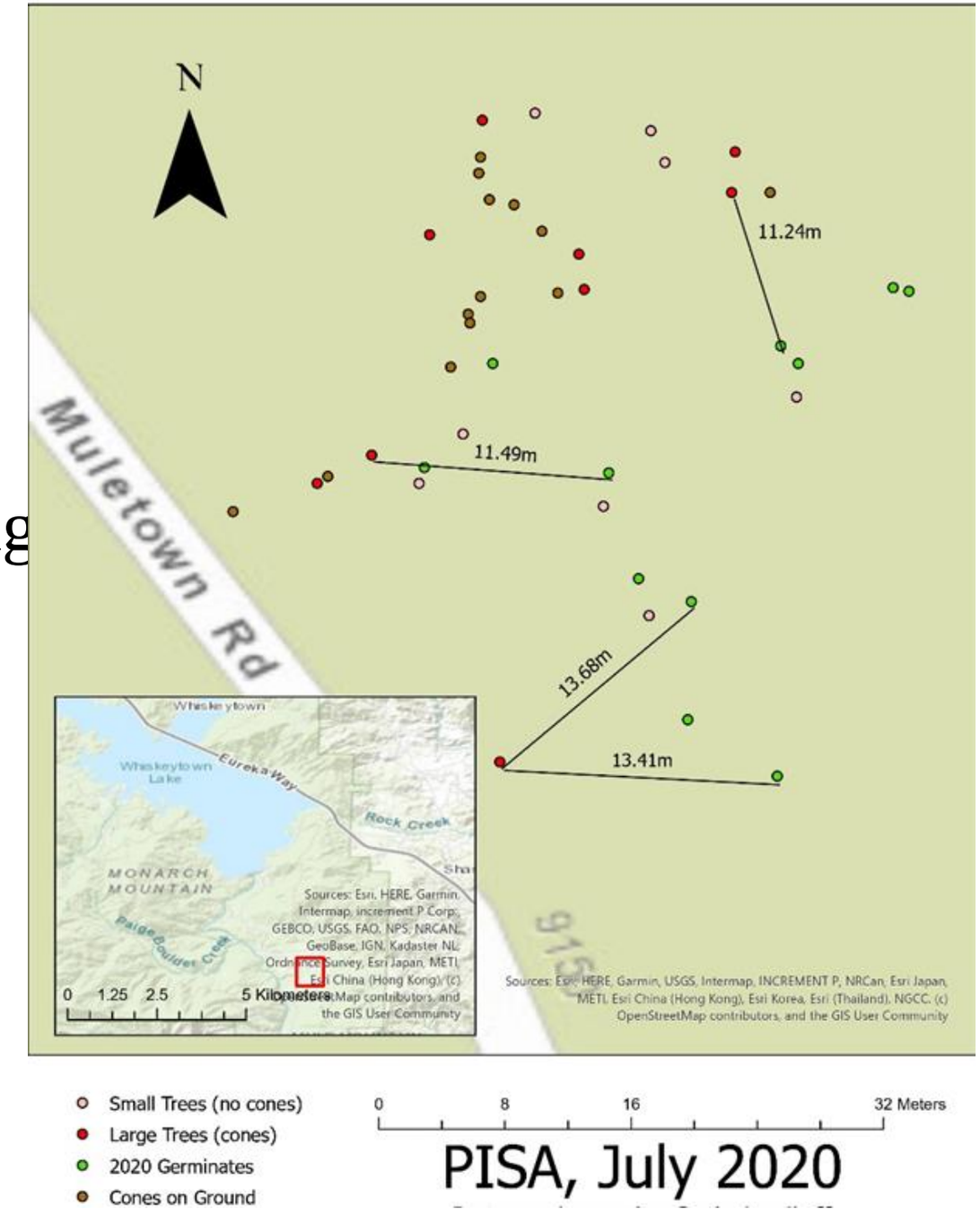
- *Pinus sabiniana* (grey pine), an endemic tree species in California, has been little-studied because of its limited commercial value.
- Grey pine reliably germinates surrounding a burnt source tree from scattered caches made by ground animals within their California range.
- This study seeks to understand whether grey pine is capable of behaving as a serotinous species; i.e. one that reliably has viable seeds on hand any time a fire might occur.

- Repeated field surveys were conducted along HWY 299 to Redding to observe the cone production and scale opening and to estimate post-fire seedling density.
- ***Germination-*** Seed cones were collected in the field, extracted seeds, soaked seeds in water for 48 hours and then seeds were sown in containers in the greenhouse after six week of cold stratification.

(a) the minimum diameter for producing the first cone was about 16 cm

(b) the great majority of recruits are found within 20 m of a burnt gray pine, averaging about two regenerating stems per tree

(c) averaging the number of recruits and possible parent trees within the burned maps gives a recruit to parent ratio of 3:1.



(d) there is little mortality for a regenerating cohort after the first post-fire summer

(e) 8% of germinants from seeds in the burned cones and 64% germinants from seeds in the unburn seed in the greenhouse.

We conclude that gray pine reliably self-replaces following fire. While it is possible that all recruits observed in the field represent seeds cached prior to the fire, we think it more likely that the small fraction of seeds surviving the flames are the source of the regeneration.