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**Hyde et al.**

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(54) **SYSTEMS AND METHODS FOR DEACTIVATING PLANT MATERIAL OUTSIDE OF A GROWING REGION**

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(71) Applicant: **Elwha LLC**, Bellevue, WA (US)

(58) **Field of Classification Search**  
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See application file for complete search history.

(72) Inventors: **Roderick A. Hyde**, Redmond, WA (US); **Jordin T. Kare**, Seattle, WA (US); **Lowell L. Wood, Jr.**, Bellevue, WA (US)

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(73) Assignee: **Elwha LLC**, Bellevue, WA (US)

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 153 days.

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*Primary Examiner* — Thomas G Black

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*Assistant Examiner* — Tyler Paige

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(74) *Attorney, Agent, or Firm* — Foley & Lardner LLP

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(57) **ABSTRACT**

A system for deactivating plant material outside of a growing region to prevent propagation of designated plant material outside of the growing region includes an imaging sensor configured to remotely detect plant material outside of the growing region, a vehicle including a sampling implement configured to collect a sample of plant material, a plant sensor configured to analyze the sample of plant material, a deactivation device configured to deactivate plant material, and a controller configured to direct the vehicle to the plant material detected by the imaging sensor, cause the sampling implement to collect the sample from the detected plant material, cause the plant sensor to analyze the sample, and, when the sample is determined to be designated for deactivation, cause the deactivation device to deactivate the detected plant material.

(51) **Int. Cl.**

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(52) **U.S. Cl.**

CPC ..... *A01M 21/02* (2013.01); *A01M 7/0042* (2013.01); *A01M 7/0089* (2013.01); *A01M*

**32 Claims, 9 Drawing Sheets**

