The residual activities of imazapyr and glyphosate on dormant *Pennisetum setaceum* (fountain grass), within the Pohakuloa Training Area

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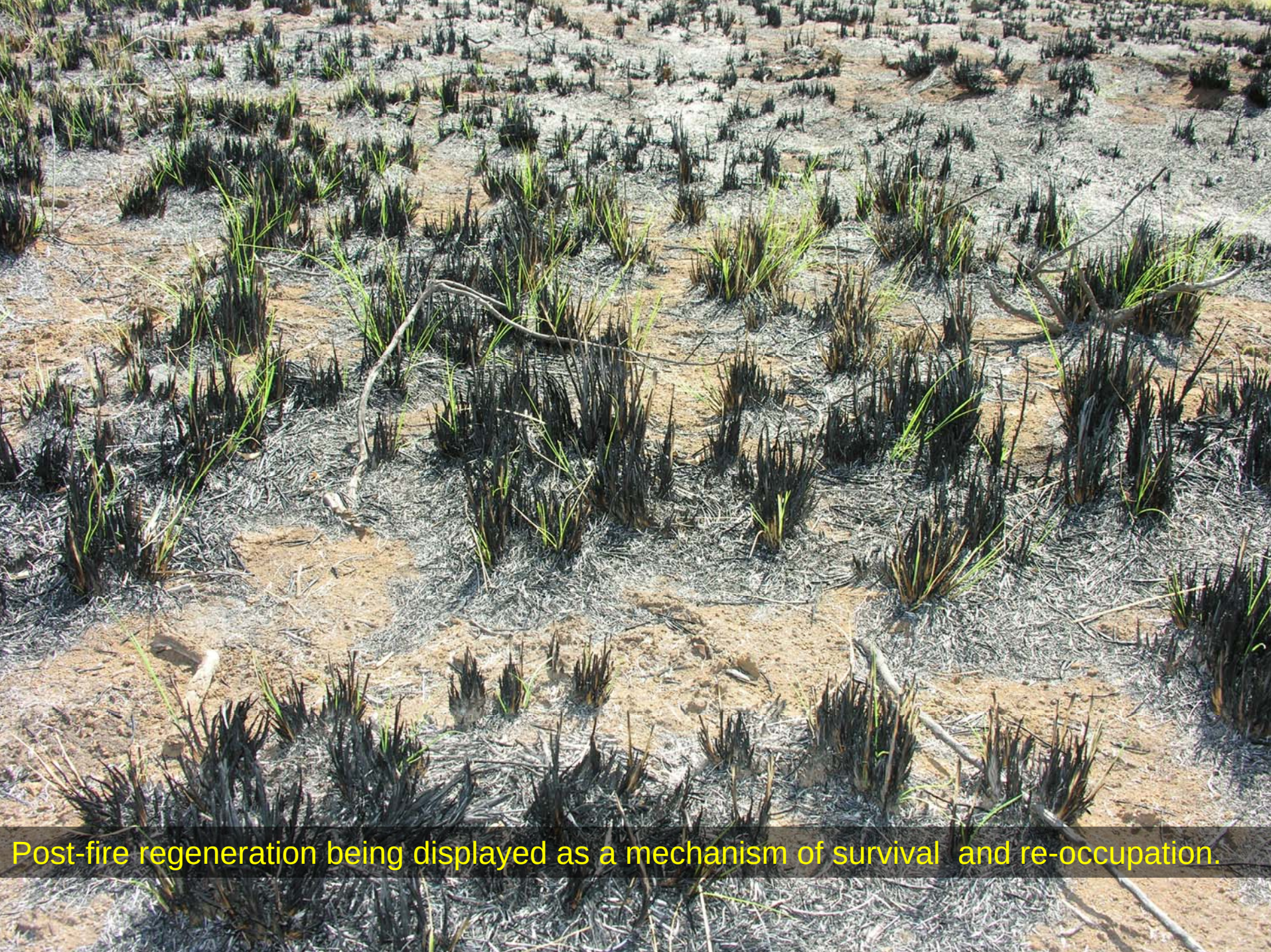
Fountain grass creates major fire hazards in Hawaii. Post-fire landscape in North Kona July 2007.

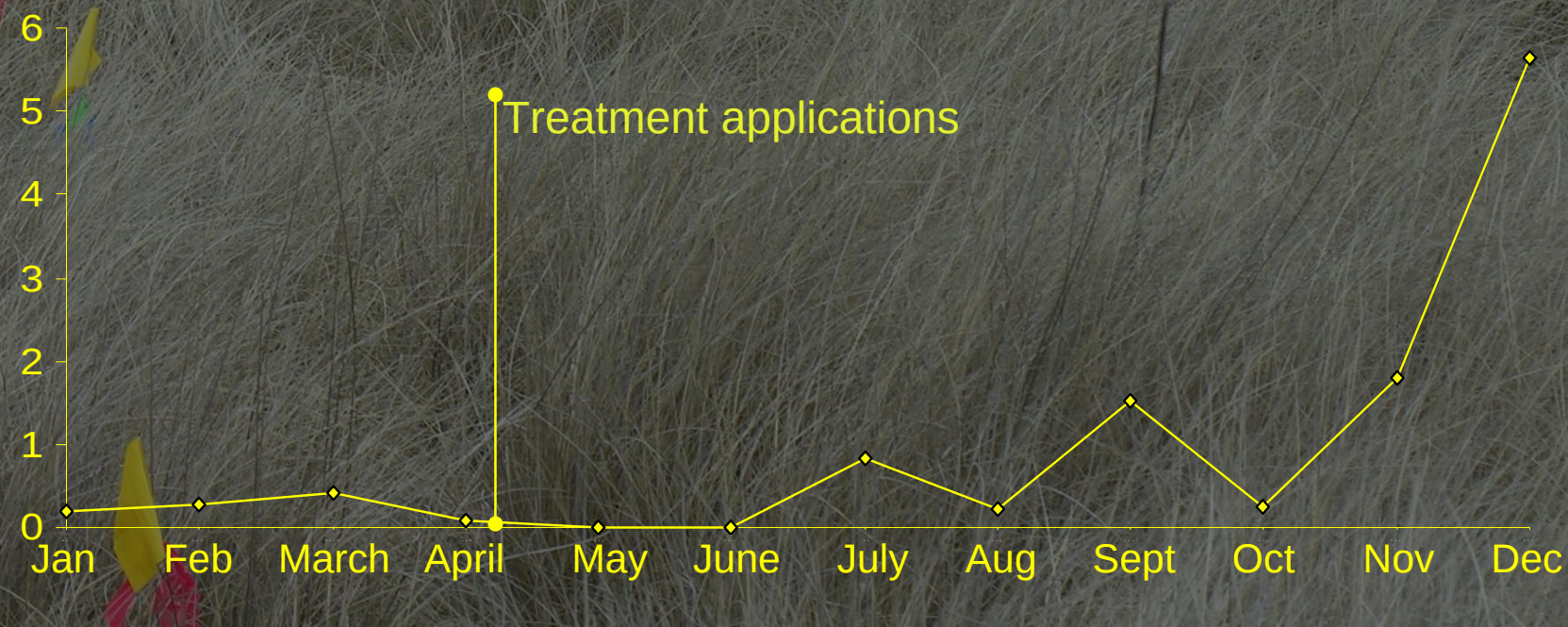


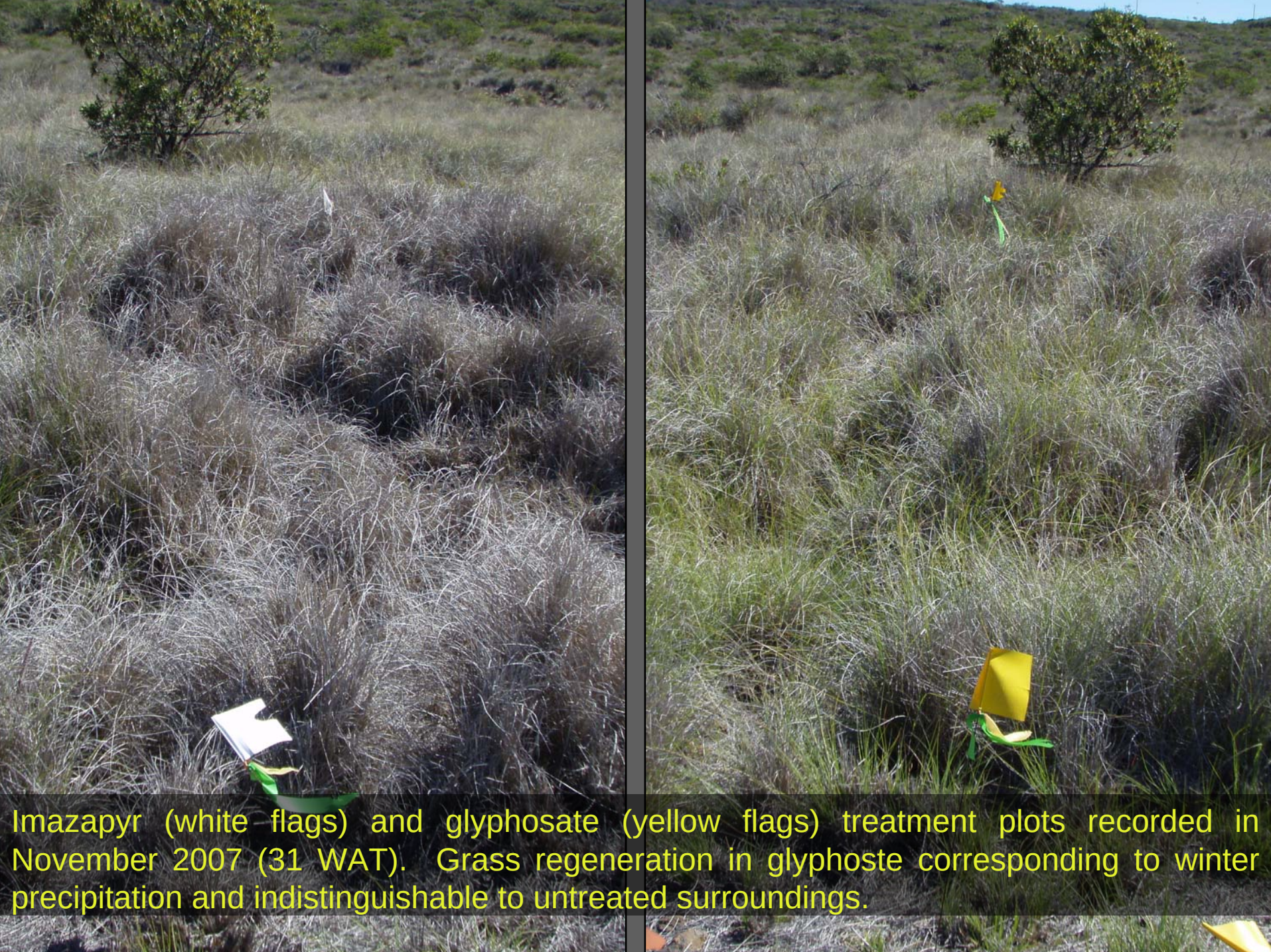
Post-fire regeneration being displayed as a mechanism of survival and re-occupation.

Active ingredients:	Symbol
Habitat®- imazapyr applied at a rate of 1 qt/A =0.5 lbs a.i./A	IM
Roundup Original Max®- glyphosate applied at a rate of 1 qt/A =1.125 lbs acid equivalents./A	GLY

Adjuvants:	
R-11®- non-ionic surfactant applied at a rate of 0.25% v/v (1qt/100gal)	NIS
Hasten®- modified vegetable oil applied at a rate of 0.5% v/v (1pt/A)	MVO
In-Place®- inverted emulsion applied at a rate of 0.25% v/v (8 oz/A)	IE

Monthly accumulated precipitation (inches) at PTA for 2007. Collected from remotely monitored weather station PTRH1 located within Range 17, adjacent to our experiment. Data is being archived by the MesoWest Project, Utah State University. *http://www.met.utah.edu/mesowest/*





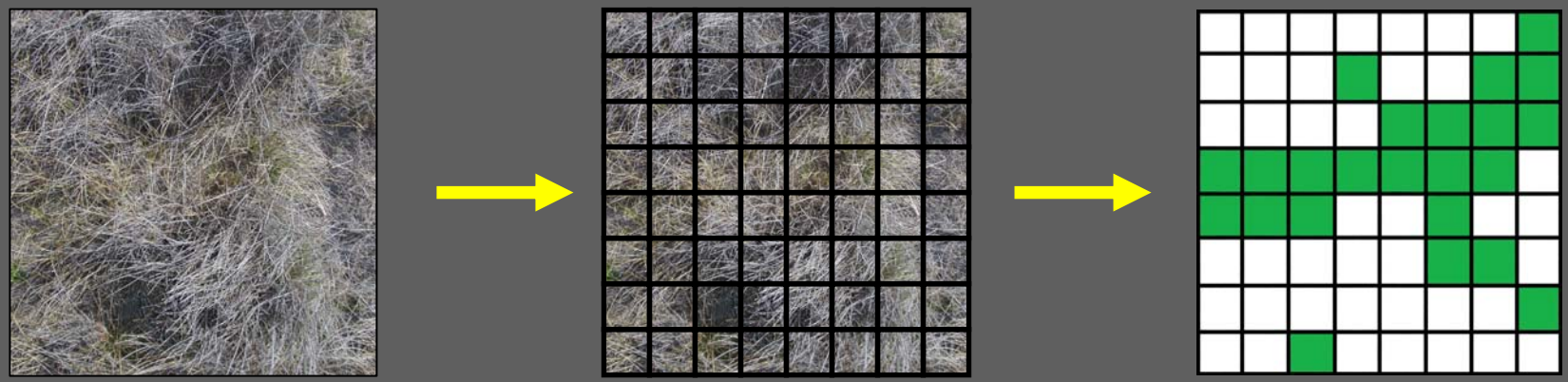
Imazapyr (white flags) and glyphosate (yellow flags) treatment plots recorded in November 2007 (31 WAT). Grass regeneration in glyphoste corresponding to winter precipitation and indistinguishable to untreated surroundings.

Visual Color Index for rating herbicide injury

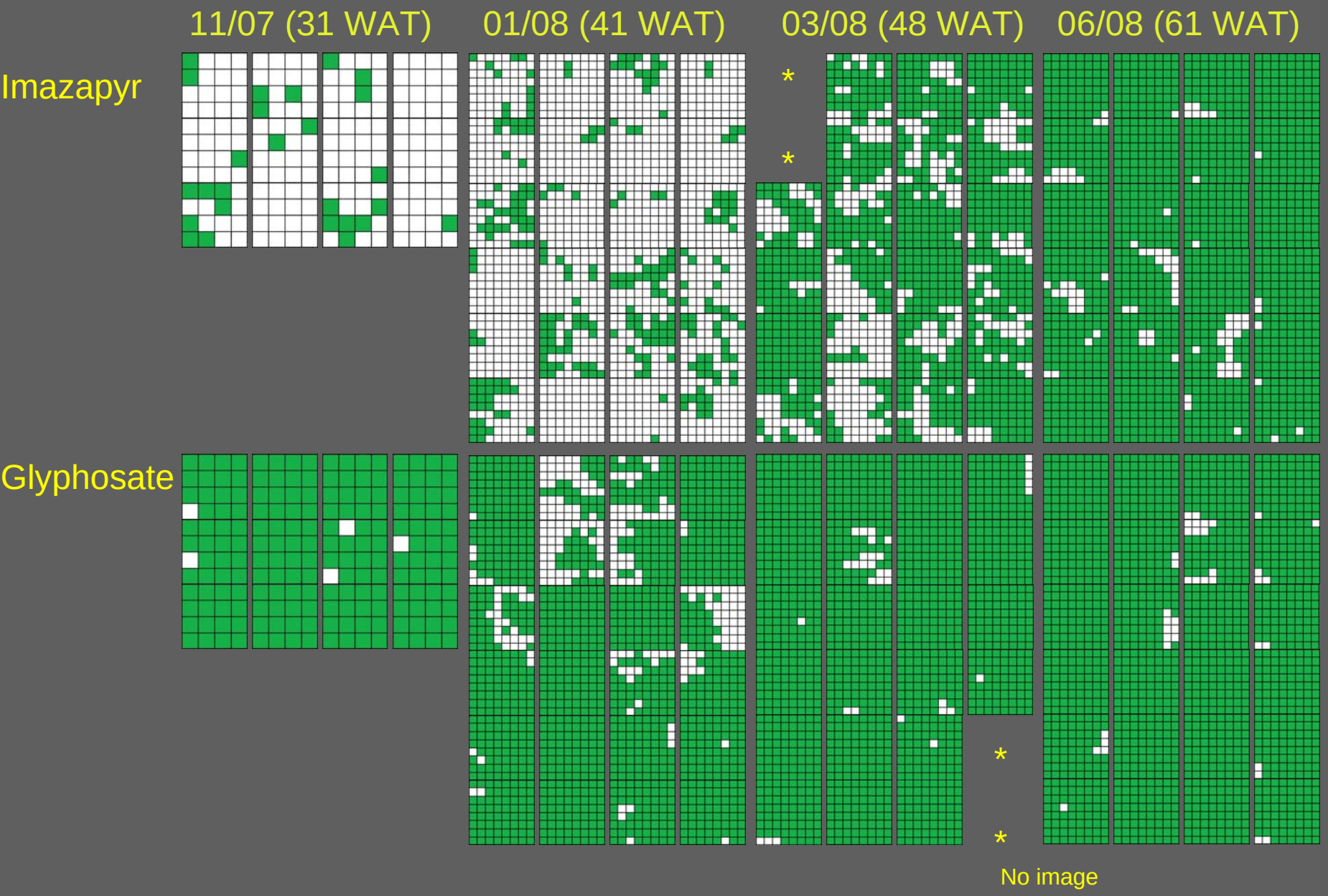
1. Record digital images of random representative 1x1 m areas encompassed by a frame placed within the treatment plot (2x subsamples in Jan and March 08)

2. Superimpose a grid layer over the image (4x4 grid for Nov. 2007 results and 8x8 grid for Jan and March 2008).

3. Select and record presence or absence of green regenerating foliage within the grid



Grid overlay of regenerating foliage, (green) or absence (white)



Mean foliar and root regeneration relative to initial dry weights of plantlets harvested from treatment plots 41 WAT and grown in the greenhouse for 6 weeks. Significantly greater foliar (P=0.0019) and root (P=0.0003) regrowth in GLY treatments

	IM NIS	IM MVO	IM NIS IE	IM MVO IE	GLY NIS	GLY MVO	GLY NIS IE	GLY MVO IE
Foliar	0.06	0.03	0.11	0.02	0.16	0.22	0.22	0.12
Root	0.02	0.01	0.04	0.01	0.08	0.10	0.12	0.08

Mean counts (±SE n=3) of flower spikes within 4 m^2 plots recorded on January 24 (41 WAT) and March 13 2008 (48 WAT). Significantly greater spikes in GLY treatments at 41 WAT (P=0.0001) and 48 WAT (P=0.0002)

	IM NIS	IM MVO	IM NIS IE	IM MVO IE	GLY NIS	GLY MVO	GLY NIS IE	GLY MVO IE
41 WAT	1±1	0	0	0	51±5	42±19	40±4	44±24
48 WAT	27±24	53±28	46±9	39±21	153±28	100±53	130±43	176±84

Mean regenerating foliar fraction relative to total above ground biomass collected from two individual clumps. Significantly greater regrowth observed in the field in GLY treatments at 61 WAT (P=0.022)

	IM NIS	IM MVO	IM NIS IE	IM MVO IE	GLY NIS	GLY MVO	GLY NIS IE	GLY MVO IE
61 WAT	0.15	0.15	0.26	0.15	0.23	0.33	0.21	0.23

Waipunalei (DHHL) in August, 2007 (0 WAT) dominated by kikuyu grass (*Pennisetum clandestinum*) and Yorkshire Fog (*Holcus lanatus*)

Waipunalei (DHHL) in November, 2007 (10 WAT). Grasses desiccated by aerial application of Habitat® at 1 qt/A in 10 gal/A volume

Bonus feature: Tolerance of young *Acacia koa* tree

Conclusions

The utility of imazapyr allows for greater flexibility in management planning and implementation.

Increasing rate to 2 qt/A could result in greater grass suppression and fuel load reduction.

Opportunities in selectivity with the establishment of native legumes

Sensitivity observed on *Dodonea viscosa, Metrosiderous polymorpha and Myrsine lessertiana*

Acknowledgements:

The U.S. Army

Center for Environmental Management of Military Lands, Colorado State University

Jennifer and Joe Vollmer and John Smith, BASF Corporation

Bob Eccles, Wilbur-Ellis Company

Mike Robinson, Department of Hawaiian Home Lands (DHHL)

Funding and support for this project provided by:

Tropical Sub Tropical Agricultural Research (TSTAR) Project no. HAW01911-08G. Sponsored by USDA-CSREES

Renewable Resources Extension Act (RREA) Project no. 13-132. Sponsored by USDA-CSREES

New partners:

Mike Donoho, HETF Puu Waawaa Dry Forest Unit, Division of Forestry and Wildlife (DoFAW)

Lisa Hadway, Ali Ainsworth, Jennifer Randall and Ian Cole NARS staff, DoFAW

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