

forest accuracies were unusually low at each assessment level. Herbaceous land cover assessment resulted in the highest individual class accuracies. The Kappa statistic was low throughout the 3 assessment levels.

Scene 1733

Scene 1733 (Figure 19) contained the second smallest relevant area of all 14 scenes. This mountainous image was classified using expert knowledge, scene overlap, and some aerial videography. Over 75% of its 338,458 ha is in deciduous forest (Table 79). Herbaceous, the only other cover-type covering more than 5% of the area, is present on about 15% of the land surface.

The homogeneous filters reduced the assessable area to 76.6% of the every-pixel level after the 3x3 filter (Table 80), and to 61.3% of the every-pixel level after the 5x5 filter (Table 81). The most prevalent land cover classes, namely deciduous forest and herbaceous, were the least reduced during the homogeneity filter procedures. Only 33 videography reference points were used in the every-pixel level assessment (Table 82). Of these points, 26 were usable during the 3x3 level assessment (Table 84), and 23 were usable during the 5x5 level assessment (Table 86). The majority (32 out of 33) of the reference points were labeled herbaceous. This uneven reference point distribution resulted in very high overall accuracies for each assessment level. The every-pixel level had an accuracy of 90.9% (table 83), while the 3x3 and 5x5 had 96.2% (Table 85) and 100% (Table 87) accuracy's respectively. Because of the dominance of herbaceous cover in the reference points, the deciduous forest and herbaceous accuracies are high and both table 86 and table 87 appear sparse. The other class accuracies were not calculatable or



Figure 19. Classification output for scene 1733 full, 3x3 homogeneous, and 5x5 homogeneous.

Table 79. Total area and proportion of each land cover type for scene 1733 when analyzed at the every-pixel level.

	Pixels	Hectares	Acres	Proportion of Total Area
Deciduous Forest	2,853,680	256,831.2	634,629.9	0.759
Coniferous Forest	114,236	10,281.2	25,404.9	0.030
Mixed Forest	0	0	0	0.000
Shrub/Scrub	177,355	15,962.0	39,442.0	0.047
Herbaceous	569,841	51,285.7	126,727.0	0.152
Open Water	14,965	1,346.9	3,328.1	0.004
Disturbed	30,563	2,750.7	6,796.9	0.008
Coastal Wetland	0	0	0	0.000
Total	3,760,640	338,457.6	836,328.7	1.000

Table 80. Results of the 3x3 homogeneous filter on land cover types within scene 1733 in area, proportion of total area, and proportion remaining from the 1733 every-pixel level.

	Pixels	Hectares	Acres	Proportion of Total Area	Proportion of Every-Pixel
Deciduous Forest	2,432,856	218,957.0	541042.8	0.844	0.853
Coniferous Forest	20,491	1,844.2	4,557.0	0.007	0.179
Mixed Forest	0	0	0	0.000	0.000
Shrub/Scrub	35,122	3,161.0	7,810.8	0.012	0.198
Herbaceous	389,113	35,020.2	86,534.8	0.135	0.683
Open Water	837	75.3	186.1	0.000	0.056
Disturbed	3,255	293.0	723.9	0.001	0.107
Coastal Wetland	0	0	0	0.000	0.000
Total	2,881,674	259,350.7	640,855.5	1.000	0.766

Table 81. Results of the 5x5 homogeneous filter on land cover types within scene 1733 in area, proportion of total area, and proportion remaining from 1733 every-pixel level.

	Pixels	Hectares	Acres	Proportion of Total Area	Proportion of Every-Pixel
Deciduous Forest	2,025,296	182,276.6	450,405.6	0.879	0.710
Coniferous Forest	2,731	245.8	607.3	0.001	0.024
Mixed Forest	0	0	0	0.000	0.000
Shrub/Scrub	5,868	528.1	1,305.0	0.003	0.033
Herbaceous	269,223	24,230.1	59,872.5	0.117	0.472
Open Water	42	3.8	9.3	0.000	0.003
Disturbed	431	38.8	95.9	0.000	0.014
Coastal Wetland	0	0	0	0.000	0.000
Total	2,303,591	207,323.2	512,295.6	1.000	0.613

Table 82. Error matrix for scene 1733 at the every-pixel level. Reference data (aerial videography points) are shown as column headings, while actual pixel values are displayed in the left column as row headings. The number of points classified correctly in each cover-type is in bold.

	Deciduous Forest	Coniferous Forest	Mixed Forest	Shrub/ Scrub	Herbaceous	Water Open	Disturbed	Coastal Wetland	Total
Deciduous Forest	1								1
Coniferous Forest									0
Mixed Forest									0
Shrub/Scrub					2				2
Herbaceous					29				29
Open Water					1				1
Disturbed									0
Coastal Wetland									0
Other									0
Total	1	0	0	0	32	0	0	0	33

Table 83. User's and producer's accuracy for each land cover class, along with overall accuracy and the Kappa statistic, for scene 1733 at the every-pixel level.

	User's	Producer's
Deciduous Forest	1.000	1.000
Coniferous Forest		
Mixed Forest		
Shrub/Scrub	0.000	
Herbaceous	1.000	0.906
Open Water	0.000	
Disturbed		
Coastal Wetland		
Overall Accuracy	0.909	
Kappa	0.381	

Table 84. Error matrix for scene 1733 at the 3x3 homogeneous level. Reference data (aerial videography points) are shown as column headings, while actual pixel values are displayed in the left column as row headings. The number of points classified correctly in each cover-type is in bold. The number of reference points for each category that falls on non-homogeneous pixels is shown in the last row.

	Deciduous Forest	Conifer Forest	Mixed Forest	Shrub/ Scrub	Herbaceous	Open Water	Disturbed	Coastal Wetland	Total
Deciduous Forest									0
Coniferous Forest									0
Mixed Forest									0
Shrub/Scrub					1				1
Herbaceous					25				25
Open Water									0
Disturbed									0
Coastal Wetland									0
Other									0
Total	0	0	0	0	26	0	0	0	26
Non- Homogeneous	1				6				7

Table 85. User's and producer's accuracy for each category, along with overall accuracy and Kappa statistic, for scene 1733 at the 3x3 homogeneous level.

	User's	Producer's
Deciduous Forest		
Coniferous Forest		
Mixed Forest		
Shrub/Scrub	0.000	
Herbaceous	1.000	0.962
Open Water		
Disturbed		
Coastal Wetland		
Overall Accuracy	0.961	
Kappa	0.000	

Table 86. Error matrix for scene 1733 at the 5x5 homogeneous level. Reference data (aerial videography points) are shown as column headings, while actual pixel values are displayed in the left column as row headings. The number of points correctly classified in each cover-type is in bold. The number of reference points for each category that falls on non-homogeneous pixels is shown in the last row.

	Deciduous Forest	Coniferous Forest	Mixed Forest	Shrub/ Shrub	Herbaceous	Open Water	Disturbed	Coastal Wetland	Total
Deciduous Forest									0
Coniferous Forest									0
Mixed Forest									0
Shrub/Scrub									0
Herbaceous					23				23
Open Water									0
Disturbed									0
Coastal Wetland									0
Other									0
Total	0	0	0	0	23	0	0	0	23
Non-Homogeneous	1				9				10

Table 87. User's and producer's accuracy for each land cover class, along with overall accuracy and Kappa statistic, for scene 1733 at the 5x5 homogeneous level.

	User's	Producer's
Deciduous Forest		
Conifer Forest		
Mixed Forest		
Shrub/Scrub		
Herbaceous	1.000	1.000
Open Water		
Disturbed		
Coastal Wetland		
Overall Accuracy	1.000	
Kappa	N/A	