

I. Introduction

The Big Presque Isle Stream – Meduxnekeag River Sub-basin is comprised of 478,052 acres. Most of it (80%) is located in Aroostook County, Maine. 379,949 acres are located in Maine, and the balance, 98,103 acres, is located in New Brunswick, Canada. This [Hydrologic Unit Profile](#) covers the land located in Maine. This sub-basin is non-standard in that it has two pour points, stemming from similar but independent delineation of hydrologic unit areas in the two countries. Efforts are underway to harmonize the data



The sub-basin is predominantly forest/scrub/shrub (73.4%) and cropland (19.0%). Other minor land uses include urban/roads (2.6%), wetlands/water/barren land (2.6%) and grasslands (2.4%).

Forest was the native vegetation prior to clearing for agricultural purposes. The upland forested areas were occupied by northern hardwood (birch, beech, and maple types). Spruce, fir, and cedar were found in low land areas. 63% of the forest land is under private non-industrial ownership, and the balance is under private, industrial ownership. The forested areas are designated critical habitat for Canada lynx, a federally listed threatened specie. Deep winter snows and dense softwood thickets are necessary habitat for snowshoe hare, the major prey species for the lynx in winter.

There are 419 farms in Maine's portion of the sub-basin. Potatoes (15,000 acres) are the primary agricultural crop grown. Also grown are small grains (15,000 acres), broccoli (1,500 ac), and hay/pasture/idle areas in grass (9,044 acres). Local market trends have resulted in demands for fewer, higher quality potatoes. Changes in the market and increased fuel and other input costs have caused landowners to reduce or abandon farming operations. As the acres in potato production declined, some idle land reverted to aspen, with various amounts of spruce and fir occupying the understory. When the aspen is harvested or reaches maturity, the area becomes a spruce-fir stand. The abandoned acres which have been planted to trees contain spruce with similar amounts of white pine and larch. Riparian areas of some of the idle land and cropland are still lacking adequate cover.

Microbursts, isolated summer thunderstorms frequently cause localized areas of erosion and offsite deposition onto adjacent areas. Suspended sediments and nutrients from surface runoff events impacts road ditches, wetlands and streams.

Conservation assistance is provided through the Central Aroostook Soil & Water Conservation Districts, the Southern Aroostook Soil & Water Conservation District, two NRCS Service Centers (Houlton and Presque Isle), one Soil Survey office, and one Resource Conservation and Development (RC&D) office.

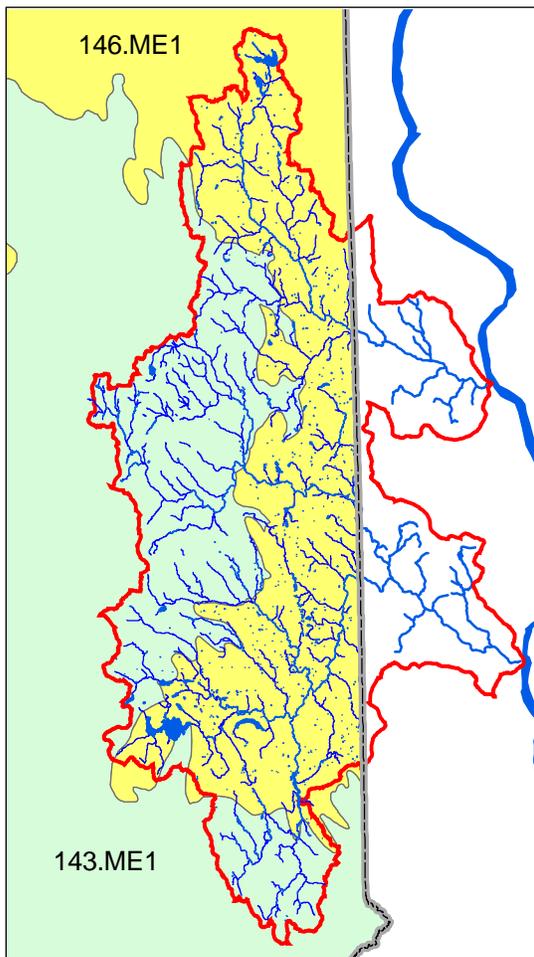
II. Physical Description

Common Resource Area Descriptions

146.ME1 – 58% of the Maine Sub-basin is in the “Aroostook” CRA. The main crop is potatoes, but small grains, hay, and some vegetables are grown. Soils are glacial in origin and are medium to coarse-textured. Annual precipitation averages 39-42 inches.

143.ME1 – The remaining 42% lies within the “Northeastern Mountains” CRA. It is very heavily wooded. Northern hardwoods, spruce, and fir dominate. Lumber and pulp are the primary products.

CRA	Acres	% of Sub-basin (ME Component)
143.ME1	160,777	42
146.ME1	219,180	58
Maine	379,957	100



Precipitation

Average Annual Precipitation within the sub-basin ranges from 39 to 43 inches.

Sub-basin 01010005 Physical Description, Level 5 Watersheds

UTM Zone 19N, NAD83
1:370,000

HUC_10	Acres	Watershed Name
0101000501	149,172	Big Presque Isle Stream
0101000502	42,358	South Branch Meduxnekeag River
0101000503	95,061	North Branch Meduxnekeag River
0101000504	191,527	B Stream-Meduxnekeag River
Total	478,118	

Legend

-  Maine/New Brunswick Border
-  Sub-basin (Level 4)
-  Watersheds (Level 5)
-  Open Water
-  Swamp/Marsh

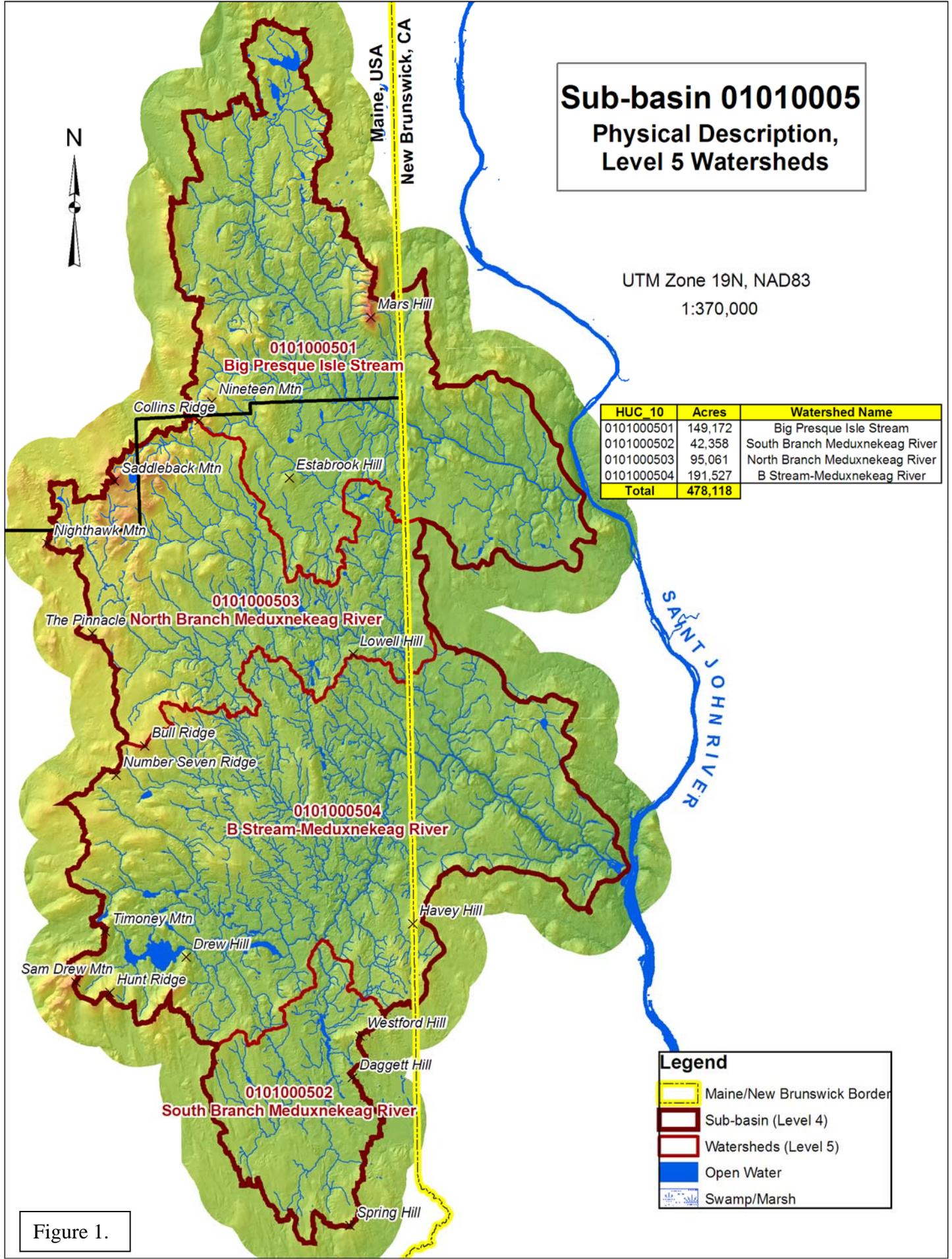
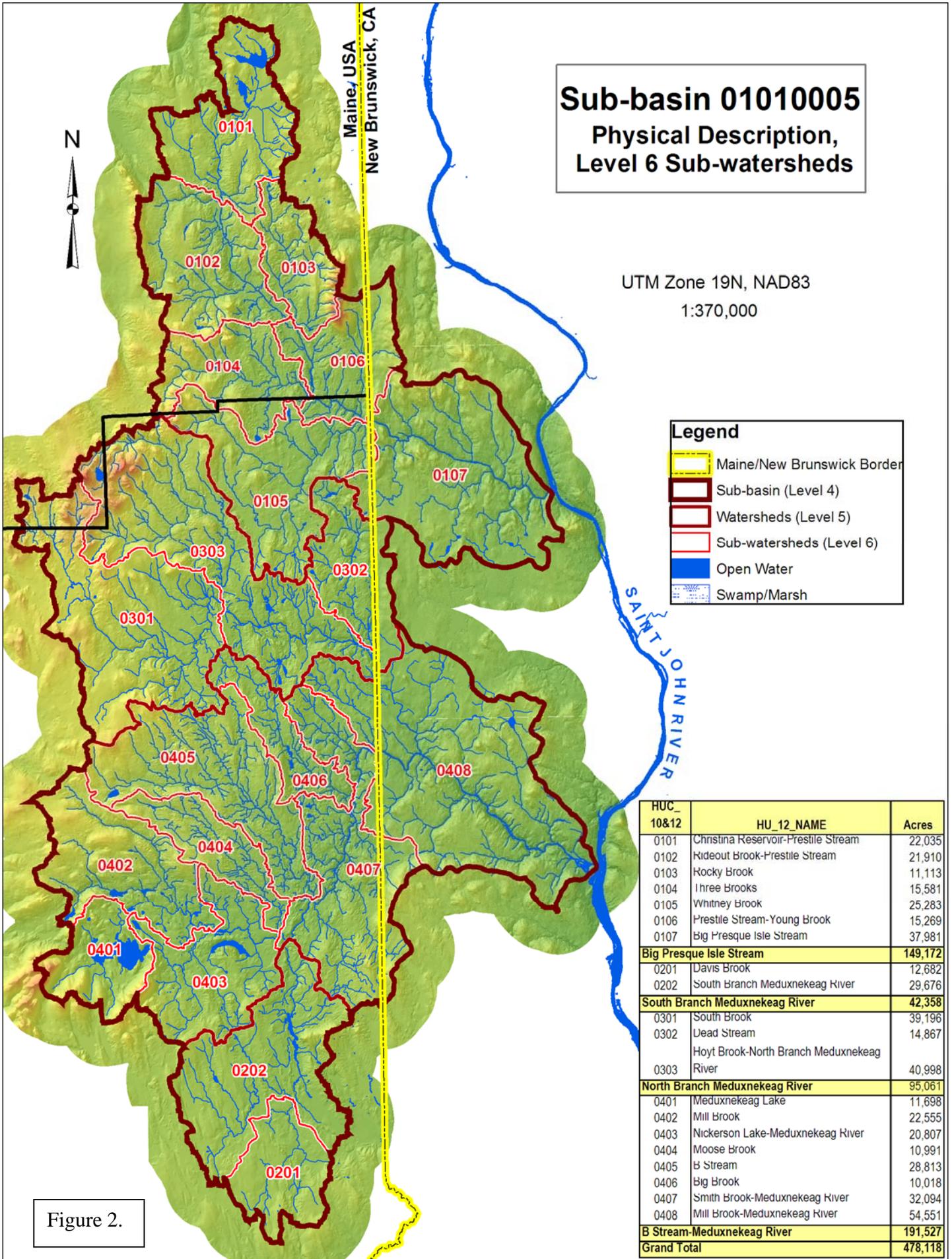


Figure 1.



Sub-basin 01010005

Physical Description, Level 6 Sub-watersheds

UTM Zone 19N, NAD83
1:370,000

Legend

- Maine/New Brunswick Border
- Sub-basin (Level 4)
- Watersheds (Level 5)
- Sub-watersheds (Level 6)
- Open Water
- Swamp/Marsh

HUC_10&12	HU_12_NAME	Acres
0101	Christina Reservoir-Prestile Stream	22,035
0102	Hideout Brook-Prestile Stream	21,910
0103	Rocky Brook	11,113
0104	Three Brooks	15,581
0105	Whitney Brook	25,283
0106	Prestile Stream-Young Brook	15,269
0107	Big Presque Isle Stream	37,981
Big Presque Isle Stream		149,172
0201	Davis Brook	12,682
0202	South Branch Meduxnekeag River	29,676
South Branch Meduxnekeag River		42,358
0301	South Brook	39,196
0302	Dead Stream	14,867
0303	Hoyt Brook-North Branch Meduxnekeag River	40,998
North Branch Meduxnekeag River		95,061
0401	Meduxnekeag Lake	11,698
0402	Mill Brook	22,555
0403	Nickerson Lake-Meduxnekeag River	20,807
0404	Moose Brook	10,991
0405	B Stream	28,813
0406	Big Brook	10,018
0407	Smith Brook-Meduxnekeag River	32,094
0408	Mill Brook-Meduxnekeag River	54,551
B Stream-Meduxnekeag River		191,527
Grand Total		478,118

Figure 2.

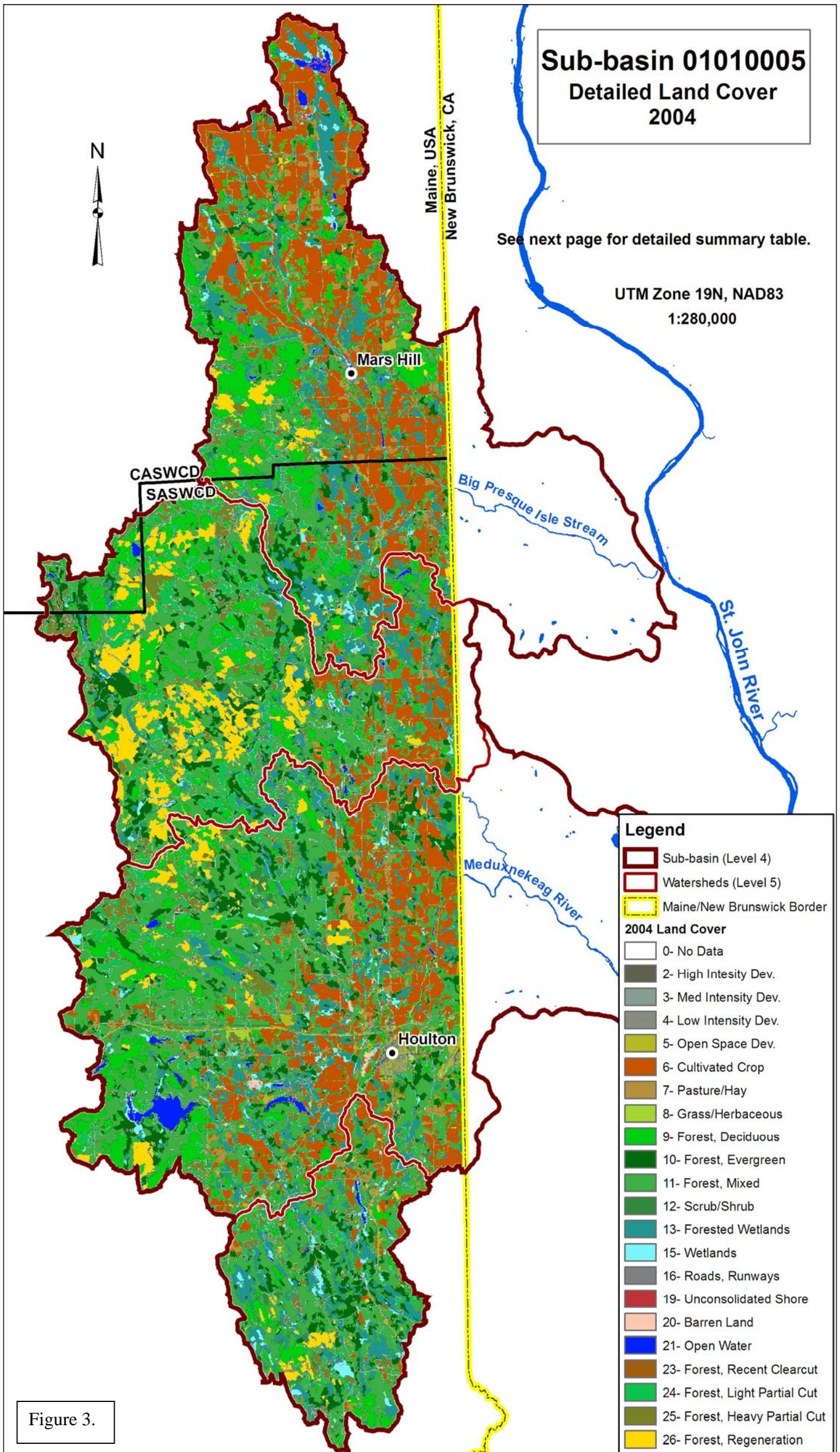


Figure 3.

Table 1. Detailed Landcover Categories, in Acres, by Sub-watershed and Watershed.

HUC		LANDCOVER CATEGORIES (Acres)																					
Watershed	Sub-watershed	No Data	High Intensity Developed	Medium Intensity Developed	Low Intensity Developed	Open Space Developed	Cultivated Crops	Pasture/Hay	Grassland/Herbaceous	Deciduous Forest	Evergreen Forest	Mixed Forest	Scrub/Shrub	Wetland Forest	Wetlands	Roads/Runways	Unconsolidated Shore	Bare Land	Open Water	Recent Clearcut	Light Partial Cut	Heavy Partial Cut	Regenerating Forest
01	01	0	29	68	45	119	12,093	1,052	21	1,072	561	1,577	131	3,025	534	432	89	22	491	0	355	202	111
01	02	0	34	52	105	168	6,457	658	21	4,027	874	5,392	165	2,193	272	328	2	44	118	0	397	154	443
01	03	0	9	15	12	243	4,582	651	49	1,409	292	1,721	155	1,278	112	161	1	17	30	0	101	58	215
01	04	0	7	8	10	15	2,417	316	1	3,324	509	3,895	200	1,663	58	162	0	14	36	0	1,051	704	1,188
01	05	220	13	31	42	124	4,833	401	18	2,584	2,143	6,035	422	4,407	551	253	0	39	66	21	1,504	902	675
01	06	4,353	60	57	69	54	5,184	461	3	1,032	320	1,839	100	890	20	181	0	6	127	1	204	116	191
01	07	36,775	0	0	0	5	361	0	0	135	57	298	9	175	5	15	0	7	8	0	1	6	119
Prestile Stream Total		41,348	153	232	284	727	35,926	3,540	113	13,583	4,756	20,755	1,182	13,632	1,551	1,531	92	148	877	22	3,613	2,141	2,942
02	01	0	1	6	10	27	256	98	11	940	1,875	4,360	329	2,006	402	73	0	4	4	109	782	670	714
02	02	0	16	59	91	175	3,177	669	25	1,746	3,183	11,408	663	4,432	821	262	5	6	161	313	1,219	737	502
So. Branch Meduxnekeag River Total		0	17	65	101	203	3,433	768	36	2,687	5,058	15,768	992	6,438	1,222	335	6	10	165	422	2,000	1,406	1,217
03	01	0	0	0	0	0	0	0	23	4,516	6,260	10,560	1,158	2,178	251	293	1	89	67	434	3,597	1,994	7,763
03	02	3,773	6	11	36	2	4,227	203	0	807	520	2,194	94	2,309	112	130	3	1	86	35	137	137	45
03	03	4	16	12	46	35	3,659	467	62	6,639	3,538	12,309	578	1,942	396	315	5	102	273	324	3,644	2,793	3,837
No. Branch Meduxnekeag River Total		3,777	22	23	82	36	7,886	670	85	11,962	10,318	25,063	1,830	6,428	759	738	9	192	427	793	7,378	4,923	11,645
04	01	0	0	0	0	0	7	0	1	3,001	1,380	3,978	14	328	266	18	3	0	1,125	94	520	165	793
04	02	0	11	50	75	242	1,570	348	172	3,080	2,060	9,473	554	984	387	370	3	66	252	176	1,136	997	544
04	03	0	10	32	91	210	5,158	734	4	1,490	1,181	5,873	242	2,788	287	318	18	57	337	397	878	616	86
04	04	0	2	11	19	178	1,782	200	7	588	650	4,100	153	1,554	186	114	1	11	0	137	373	548	379
04	05	0	86	25	49	186	1,997	519	41	2,380	4,193	9,844	976	1,902	255	275	2	116	73	369	1,809	1,731	1,985
04	06	0	7	12	15	0	2,896	548	2	771	694	2,494	130	1,133	79	128	0	10	77	96	382	320	224
04	07	4,733	458	275	298	867	9,205	1,070	85	675	2,059	6,978	519	1,972	427	640	4	150	135	254	561	574	154
04	08	48,246	15	12	27	22	2,338	100	0	31	1,146	1,142	30	999	66	89	0	2	12	14	110	81	62
Meduxnekeag River Total		52,979	587	418	574	1,705	24,953	3,518	313	12,016	13,362	43,882	2,618	11,660	1,952	1,952	33	411	2,012	1,536	5,768	5,031	4,227
Sub-basin Total		98,103	779	737	1,041	2,671	72,199	8,497	547	40,248	33,493	105,468	6,623	38,159	5,484	4,557	139	762	3,480	2,773	18,759	13,502	20,031

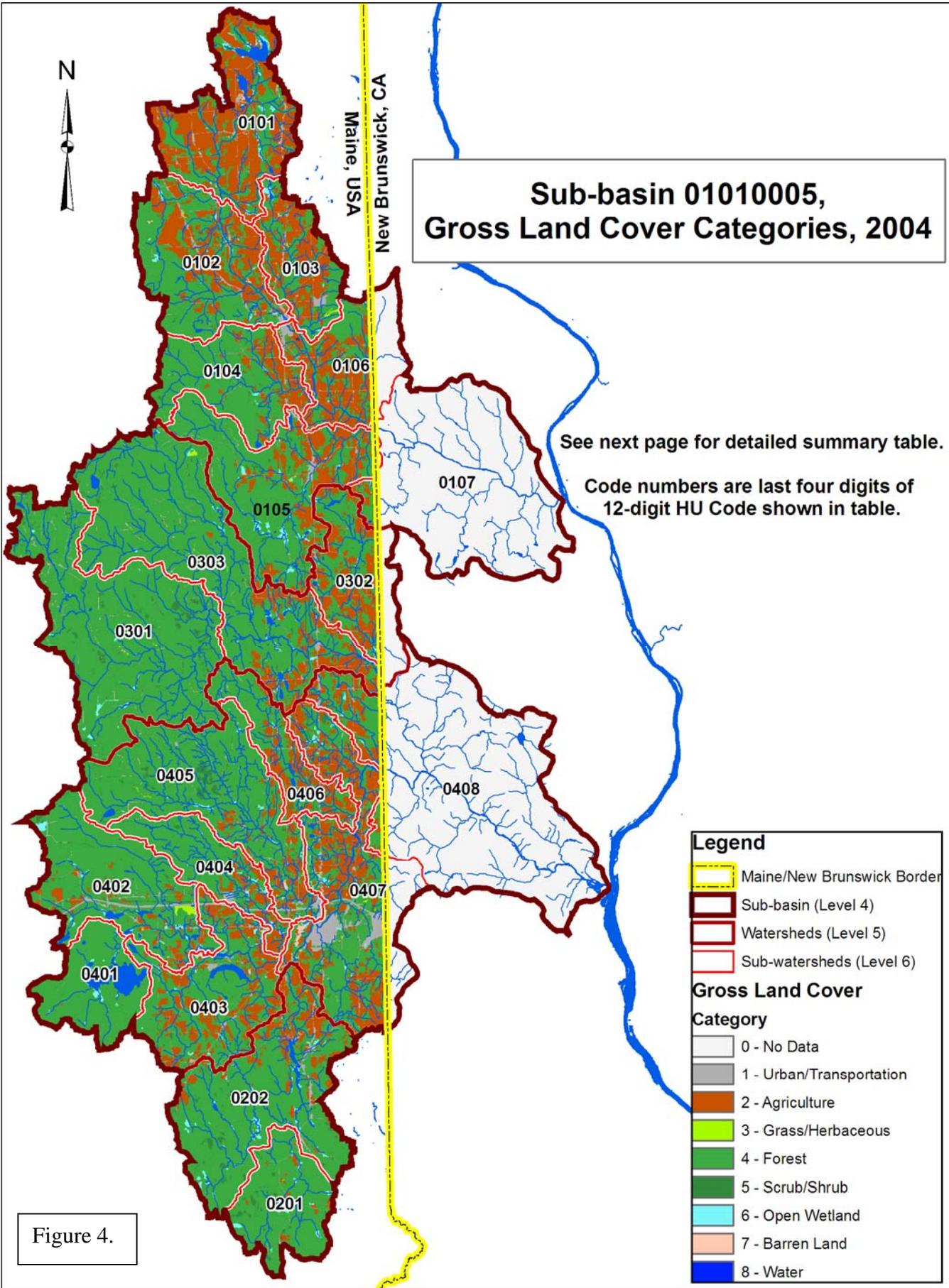


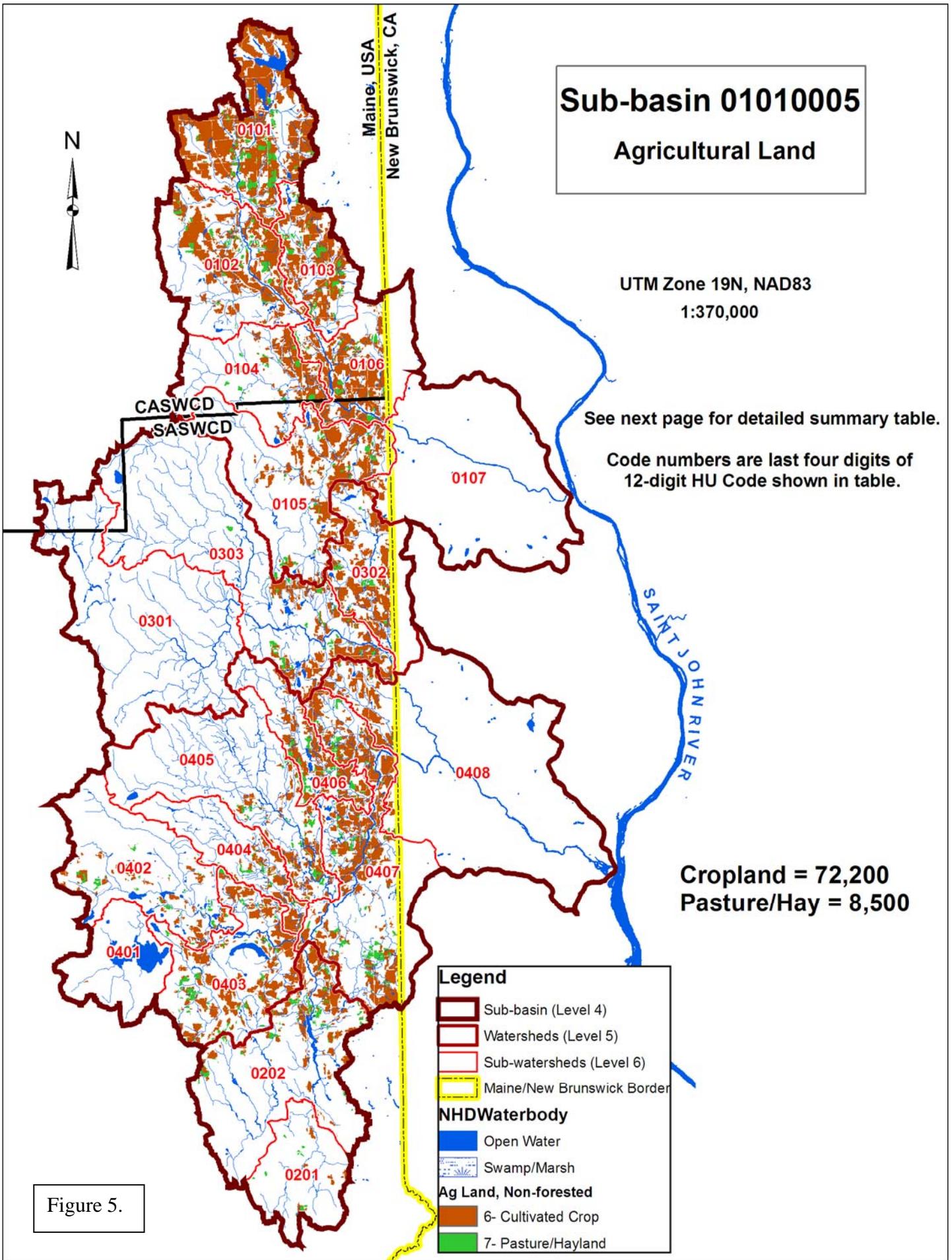
Table 2. Gross Land Cover Categories by Sub-watershed (Acres)

HUC_12	NO DATA*	URBAN/ ROADS	AGRICUL- TURE**	GRASS/ HERBACEOUS	FOREST***	SCRUB/ SHRUB	OPEN WETLAND	BARREN LAND	WATER	SUB- WATERSHED TOTAL
010100050101	0	621	2,516	41	24,212	976	255	118	73	28,812
010100050102	4,353	421	5,645	3	4,593	100	20	6	127	15,268
010100050103	0	693	13,145	21	6,903	131	534	111	491	22,029
010100050104	220	463	5,234	18	18,271	422	551	39	66	25,283
010100050105	0	602	3,847	25	23,540	663	821	11	161	29,670
010100050106	36,775	19	362	0	790	9	5	7	8	37,975
010100050107	0	118	354	11	11,456	329	402	5	4	12,677
Prestile	41,348	2,937	31,102	119	89,765	2,630	2,586	296	930	171,714
010100050201	0	293	0	23	37,302	1,158	251	89	67	39,185
010100050202	3,773	184	4,430	0	6,184	94	112	4	86	14,867
So. Br. Medux.	3,773	477	4,430	23	43,486	1,252	363	94	153	54,051
010100050301	0	18	7	1	10,259	14	266	4	1,125	11,694
010100050302	4	425	4,126	62	35,025	578	396	107	273	40,996
010100050303	0	202	2,733	1	12,334	200	58	14	36	15,578
No. Br. Medux.	4	645	6,867	64	57,617	792	720	125	1,434	68,268
010100050401	0	161	3,444	2	6,114	130	79	10	77	10,018
010100050402	0	323	1,982	7	8,327	153	186	12	0	10,991
010100050403	4,733	2,538	10,275	85	13,227	519	427	154	135	32,093
010100050404	0	749	1,918	172	18,450	554	387	68	252	22,550
010100050405	0	441	5,233	49	5,074	155	112	18	30	11,113
010100050406	0	688	7,115	21	13,479	165	272	46	118	21,904
010100050407	48,246	165	2,438	0	3,586	30	66	2	12	54,546
010100050408	0	660	5,891	4	13,307	242	287	75	337	20,804
Meduxnekeag	52,979	5,726	38,296	341	81,565	1,948	1,816	386	962	184,018
CATEGORY TOTAL	98,103	9,786	80,695	547	272,433	6,623	5,484	901	3,480	478,052

* No Data refers to areas of the sub-watersheds that lie in New Brunswick, Canada.

** Includes Cultivated Cropland and Pasture/Hayland.

*** Includes Forested Wetland.



III. Resource Concerns

Cropland

Sheet and rill and ephemeral gully erosion by water are resource concerns on cropland jeopardizing productivity and causing deterioration of the soil resource base. Associated sedimentation is impacting water quality and aquatic life. More frequent intense storm events (microbursts) are challenging traditional conservation work efforts resulting in increased erosion and water quality impacts.

Conservation Practices that can be used to reduce erosion and associated sedimentation include: management practices such as conservation crop rotation, cover crop, grass buffers, field stripcropping, critical area planting, nutrient management, pest management and residue management; and, structural practices such as diversions, waterways, lined waterways, and sediment basins. Practices such as filter strips and riparian forest buffers can help to reduce water quality impacts from cropland erosion.

Forest

Resource concerns associated with forestry include: inefficient or lack of forest management, need for forest management plans, need for creation or protection of buffers, need for new access roads, operation and maintenance of existing forest road and ditches, and barriers to fish passage.

Conservation practices that may be used to address these concerns include: riparian forest buffer, access roads, grade stabilization structures, stream crossings, fish passage, prescribed forestry, timber stand improvement, and pruning.

Wildlife

Grassland Bird Habitat for species such as the Upland Sandpiper is challenged due to the intensive agricultural practices in the area. There are no or few deer yards in the Prestile watershed.

Conservation practices that may be used to address this issue includes: Delayed mowing to protect nesting area of birds, longer rotations with grass cover, hayland planting with diversity of plant species, upland habitat management, early successional habitat management).

Fisheries: The Prestile Stream and Meduxnekeag support viable fisheries. Concerns include: establishing barriers to prevent migration of fish invasives and irrigation needs of local agriculture during low flow periods.

Conservation practices that may be used to address these concerns include: creation of fish passage barriers, irrigation water source development, irrigation water management plans and irrigation related practices for efficient water use.

Lack of Riparian Vegetation (All land uses)

- Many of the riparian buffers are too narrow and do not function to remove sediments or filter pollutants in runoff.
- Issue with invasives in buffer areas such as purple loosestrife

Conservation Practices that can be used to address this issue include: Upland Wildlife Habitat Management, Riparian Forest Buffer, Grass Filter Strips, Livestock Exclusion (fence), and Sediment Basins (to trap suspended sediment occurring in concentrated flows).

Water Quality

- The Prestile Stream is classified as Class A to Route 1A in Mars Hill and Class B below Route 1A. At the present time it is not meeting Class C. Christina Reservoir is listed as impaired for primary contact recreation due to high nutrient loads and frequent algal blooms. A TMDL (Total Maximum Daily Load) assessment is underway in 2008 that will include an implementation plan. Preliminary findings indicate that cropland is accounting for a predicted 95% of the total sediment load within Prestile Stream Watershed; and 78% of sediment delivered to Christina Reservoir. Phosphorus and nitrogen are the major limiting nutrients for algae growth and are pollutants of concern in Prestile Stream. Cropland is by far the largest contributor of phosphorus loading to Prestile Stream.
- The Meduxnekeag River – A TMDL 1996 study concluded that non-attainment of dissolved oxygen standards in Meduxnekeag was due to high phosphorus loading to the river resulting in excessive algae growth. The focus of the TMDL was loading associated with Houlton sewage treatment plant. However, non-point sources were also cited as causes of phosphorus loading as well as from cropland erosion, lack of vegetative buffers, and livestock operations.
- Sediment is a significant pollutant of concern in the watershed. Sources of sediment include: cropland erosion, poorly maintained public and private road ditches and culverts, and streambank erosion from grazing activities or lack of vegetation in riparian areas.
- Legacy DDT contamination.

Conservation practices that can be used to reduce sedimentation from cropland erosion are outlined above. Road related erosion can be reduced with proper road construction and operation and maintenance. Practices include: properly sized and installed ditches and culverts; properly placed ditch turnouts, gravel road maintenance, water bars and other erosion practices on logging roads, appropriate erosion control practices on camp roads.

Storm Water

Within the watershed the lack of storm water management is a resource concern. Areas of concern include: bare soil susceptible to runoff within the agricultural sector (cropland), and urban sector (lawns, roads, development) and bacteria. More frequent intense storm events are increasing storm water impacts.

Conservation Practices that may be used to address this issue include: sediment basins, proper road construction with properly designed and installed ditches and culverts with turnouts to treat runoff, filter strips, riparian forest buffers, erosion and sediment control practices on cropland and urban projects and the use of innovative practices such as rain gardens.

Financial Assistance and Technical Assistance Resources

Current USDA Farm Bill Programs that can be utilized to address these resource concerns include: the Environmental Quality Incentives Program, the Wildlife Habitat Incentives Program, the Farm and Ranch Land Protection Program, and the Conservation Reserve Program. The Programs may change with new Farm Bills.

Other State and local programs may be available to assist with these concerns as well. The Maine Forest Service provides funds for the development of forest stewardship plans. The State of Maine, through the Maine Department of Agriculture has periodically provided funding for irrigation water source development or for animal waste storage and handling facilities. The State of Maine Department of Environmental Protection has provided grant funds to local entities to address various environmental concerns through their EPA funded 319 program. The local Soil and Water Conservation Districts raise funds to address various resource concerns within their borders. The Houlton Band of Maliseets obtain grant funds to assist in addressing resource concerns. The University of Maine Cooperative Extension, the Maine Potato Board and Potato industry may provide resources to assist producers tackle environmental issues.

Technical assistance may be provided by the USDA Natural Resources Conservation Service, the local Soil and Water Conservation Districts, Maine Forest Service, US Fish and Wildlife Service, Maine Fish and Inland Wildlife, Maine Department of Environmental Protection, the St. John Aroostook Resource Conservation and Development Area Council. Numerous other governmental agencies and non-profits are available to provide assistance.

A summary matrix addressing each resource concern can be found in Section VII. This matrix identifies the land use, four primary resource concerns associated with each land use, expected levels of treatment with associated conservation practices and costs. It represents a rough estimate based on the knowledge and expertise of natural resource professionals working in the watershed.

IV. Census and Social Data

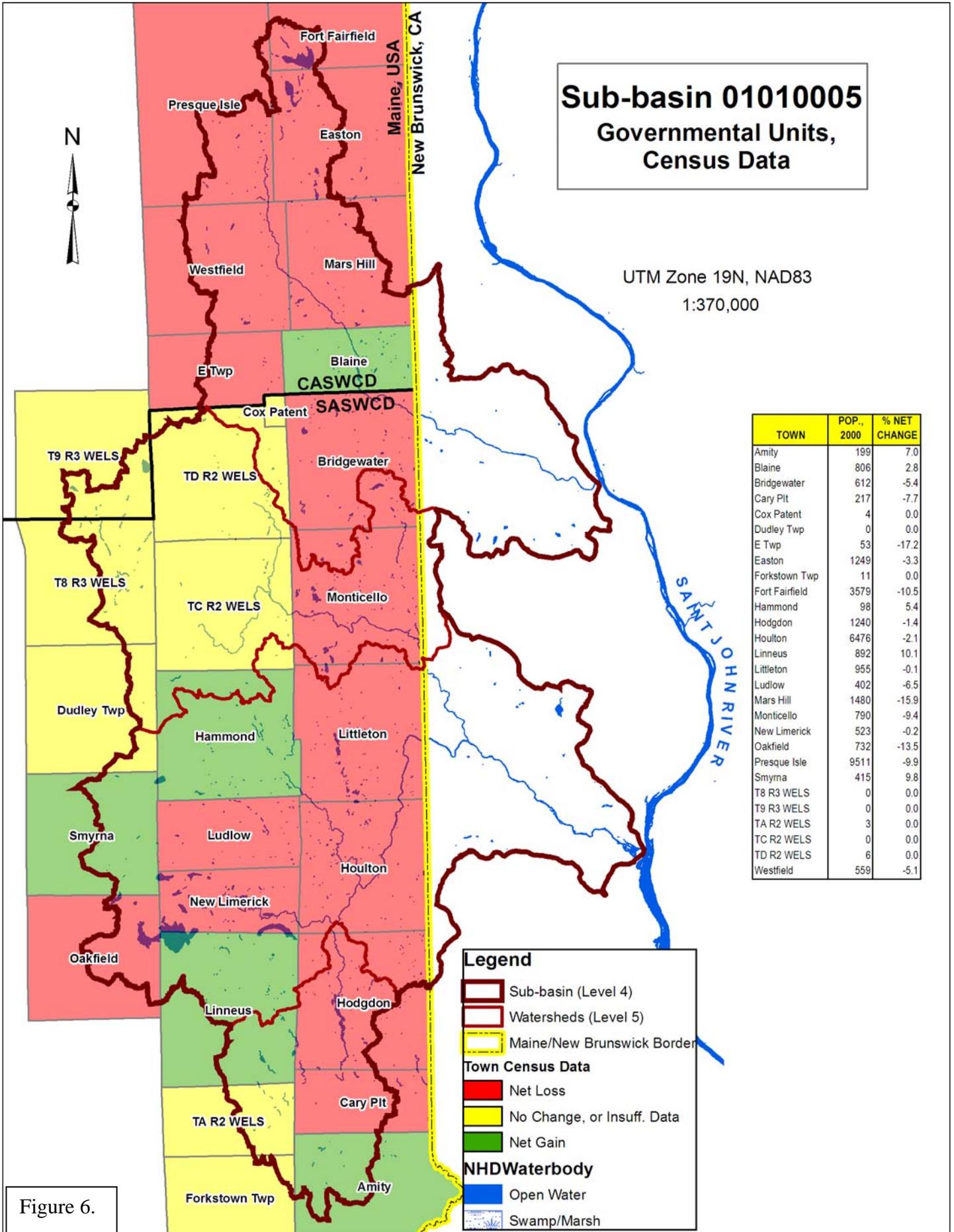


Figure 6.

Table 3. 2002 Ag Census - Number of Farms in Sub-basin, by Category

Totals	Number of Farms	Nursery and Greenhouse	Grains, Oilseeds, Dry Beans and Dry Peas	Vegetables, Melons, Potatoes and Sweet Potatoes	Nursery, Greenhouse, Floriculture and Sod	Cut Christmas trees and short rotation woody crops	Other crops and hay	Livestock, Poultry and their products sold	Operated by Full Owners	Operated by Part Owners	Operated by Tenants	One Operator	Multiple Operators	Women operators	Farms with grain storage capacity	Payments received from Federal Farm Programs	Cropland harvested	Woodland	Permanent pasture and rangeland	Land under Conservation Reserve or Wetlands Reserve Programs	Cattle and calves inventory	Sheep and lambs inventory	Layers 20 weeks old and older inventory	Horses and ponies of all ages inventory	Barley	Oats	Potatoes
Sub-basin	419	163	80	97	10	5	26	69	282	112	5	243	159	152	18	202	220	309	94	14 5	54	6	15	90	34	50	89
Maine	719 6	382 5	30 8	97 7	76 9	21 6	175 7	254 6	524 2	160 4	35 0	372 6	347 0	390 0	14 1	124 4	486 9	513 8	215 5	47 6	174 9	52 4	104 4	215 2	11 2	19 7	44 4

Source: 2002 NASS Agricultural Census, Tabulation by Zip Code.

V. Status of Resources

A. Riparian Buffers

Buffers were generated around hydrography using two widths – 75 feet for single-line streams and 250 feet for double-line streams and lakes (See table on second page following). The total riparian buffer area within the sub-basin is 28,140 acres. 79% of these buffers are forested.

In the Prestile Stream Watershed there are 7,271 acres of riparian buffers, 1,372 of which fall within cultivated cropland. 72% of these acres are contained within three Sub-watersheds: 0101, 0102, and 0106.

In the Meduxnekeag River Watersheds there are 20,870 acres of riparian buffers, 1,556 of which fall within cultivated cropland. 89% of these acres are contained within seven of the 13 Sub-watersheds: 0202, 0302, 0303, 0403, 0405, 0406, and 0407.

These cultivated riparian zones with inadequate cover account for only a little more than 10% of the total riparian zone, but are one of the principal sources of sediment and associated nutrients which have significant impacts upon water quality in the sub-basin.

Status of conservation plans completed, practices installed to address resource concerns:

Conservation Plans written in the Prestile/Meduxnekeag Watershed:

124/419 conservation plans completed (29% participation).

% of farms not at RMS level

80,000ac/40ac per planning unit = 2000 planning units

Estimated 15 plans per year per planner x 2.25 planners = 34 plans per year x 10 yrs = 340

340plans/2000 plans x100%=17% of plans completed, thus 83% of farms are not RMS

Extent of conservation practices already planned in the Prestile/Meduxnekeag Watershed:

Note: This data compiled from PRS, queried Hydrologic Unit 01010005 for fiscal years 2008-2004

Practice	Extent
Access Road (560) (ft)	290
Comprehensive Nutrient Management Plan (100) (no)	6
Conservation Cover (327) (ac)	715.5
Conservation Crop Rotation (328) (ac)	2722.7
Cover Crop (340) (ac)	1395.9
Critical Area Planting (342) (ac)	0.7
Mulching (484) (ac)	446
Nutrient Management (590) (ac)	865
Stripcropping (585) (ac)	63.9
Structure for Water Control (587) (no)	1
Upland Wildlife Habitat Management (645) (ac)	1268.7
Waste Storage Facility (313) (no)	6
Diversion (362) (ft)	1850
Early Successional Habitat Development/Management (647) (ac)	39.5
Fence (382) (ft)	920
Filter Strip (393) (ac)	3.7
Grade Stabilization Structure (410) (no)	1
Heavy Use Area Protection (561) (ac)	0.8
Irrigation System, Sprinkler (442) (ac)	128.7
Irrigation Water Management (449) (ac)	96.6
Lined Waterway or Outlet (468) (ft)	250
Pasture and Hay Planting (512) (ac)	10
Prescribed Grazing (528) (ac)	156.2
Grassed Waterway (412) (ac)	2.1
Subsurface Drain (606) (ft)	1500
Water Well (642) (no)	1
Watering Facility (614) (no)	1
Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic (430DD) (ft)	1380
Pest Management (595) (ac)	61.1
Pumping Plant (533) (no)	2
Row Arrangement (557) (ac)	285.2
Waste Utilization (633) (ac)	33.6

**Sub-basin 01010005
Watershed 0101000501-
Prestile Stream
Riparian Buffers with
Gross Land Cover Categories**

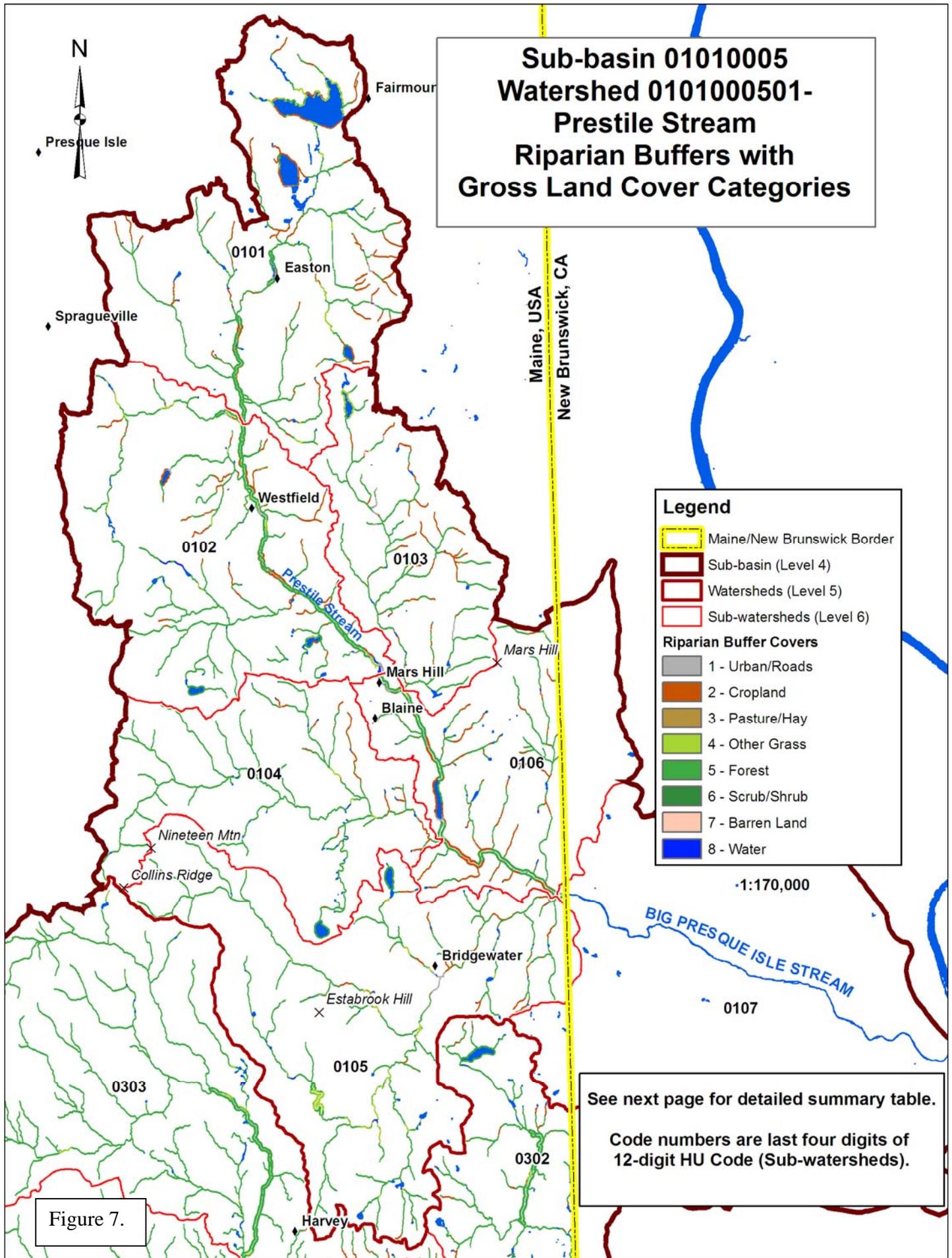
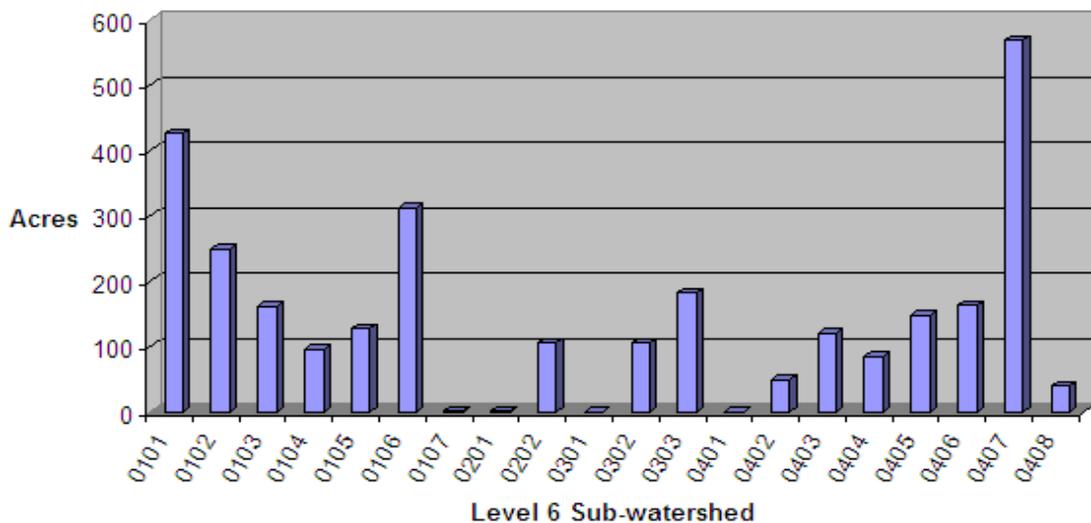


Figure 7.

Table 4. Riparian Buffers by Cover Type (Acres)

Level 6 Sub-watershed	Sub-watershed Name	Urban/Roads	Cropland	Pasture/Hay	Other Grass	Forest	Scrub/Shrub	Barren Land	Water	Sub-watershed Total
0101	Christina Res.-Prestile Str.	44	426	15	154	856	10	1	18	1,524
0102	Rideout Bk.-Prestile Str.	53	249	16	72	1,226	7	3	29	1,655
0103	Rocky Brook	29	162	13	40	510	11	4	1	769
0104	Three Brooks	7	96	3	12	786	5	0	4	913
0105	Whitney Brook	28	127	7	142	1,032	16	1	11	1,364
0106	Prestile Str.-Young Bk.	35	312	7	6	648	10	0	16	1,034
0107	Big Presque Isle Stream	5	1	0	0	6	0	0	0	12
Prestile Stream Subtotals		202	1,372	61	426	5,064	58	10	78	7,271
0201	Davis Brook	1	1	0	58	378	1	0	1	440
0202	So. Br. Meduxnekeag R.	37	105	29	240	1,571	14	2	10	2,008
So. Branch Meduxnekeag Subtotals		38	105	29	298	1,949	14	2	11	2,447
0301	South Brook	9	0	0	35	2,357	28	0	4	2,434
0302	Dead Stream	5	105	1	23	748	5	0	7	895
0303	Hoyt Bk.-No. Br. Medux.	31	182	10	161	3,277	21	3	28	3,713
No. Branch Meduxnekeag Subtotals		46	286	12	219	6,382	55	3	39	7,042
0401	Meduxnekeag Lake	1	0	0	106	496	0	0	33	636
0402	Mill Brook	37	49	2	96	1,107	18	5	14	1,329
0403	Nickerson Lk.-Medux. R.	47	121	16	72	1,376	7	2	24	1,665
0404	Moose Brook	43	85	9	55	724	3	0	0	921
0405	B Stream	69	148	35	89	2,344	68	1	7	2,759
0406	Big Brook	10	163	13	27	638	4	0	15	870
0407	Smith Bk.-Medux. R.	169	569	45	94	1,868	42	3	34	2,823
0408	Mill Bk.-Medux. R.	17	39	2	8	311	1	0	0	379
B Stream-Meduxnekeag Subtotals		392	1,175	122	547	8,864	143	11	127	11,381
Total Buffer Area by Cover Type		678	2,938	224	1,490	22,260	270	26	255	28,142
% of Buffer Area		2.41	10.44	0.80	5.30	79.10	0.96	0.09	0.91	

Riparian Buffers with Cropland Cover Type



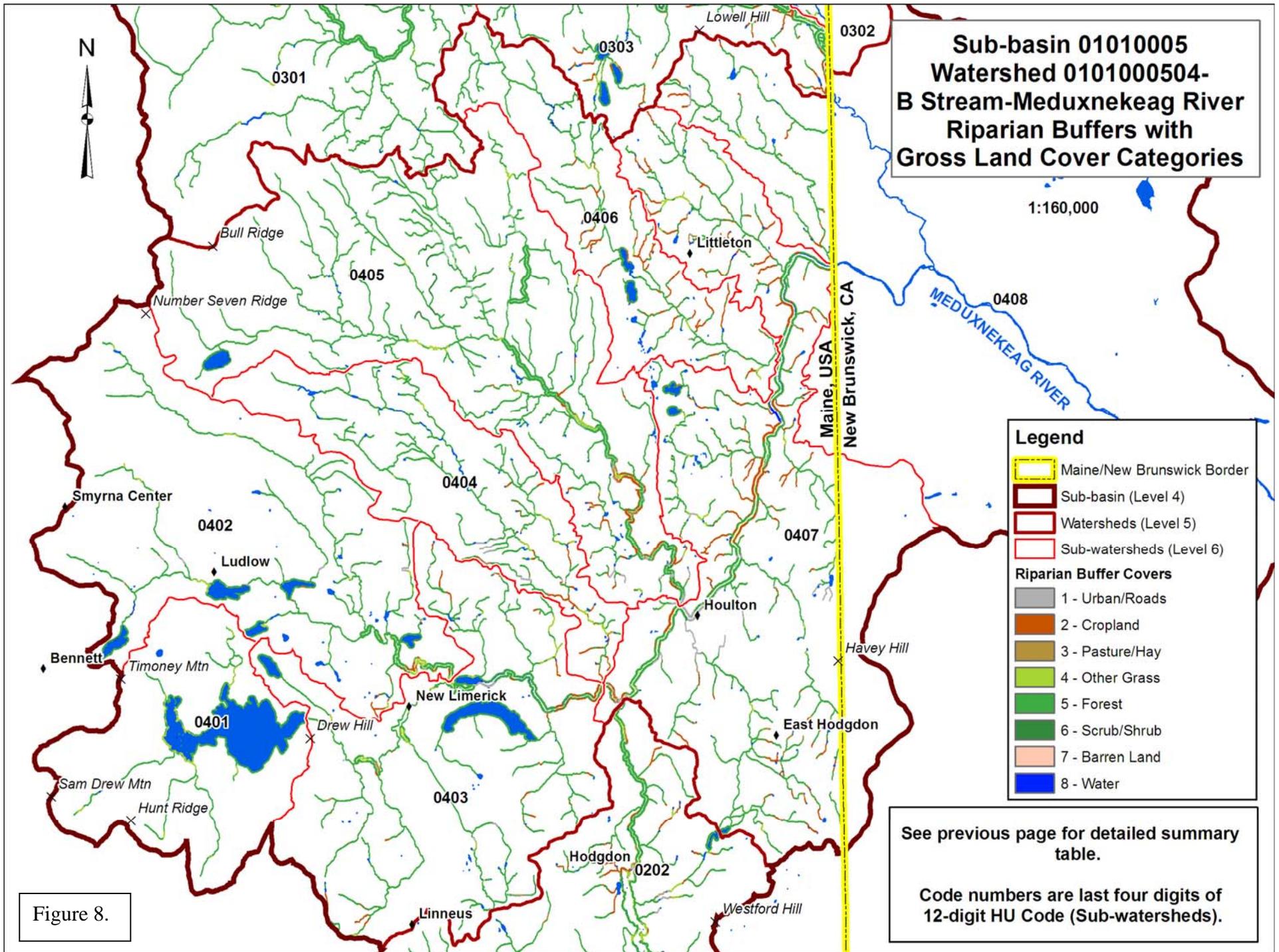


Table 5. 305b/303d List for Sub-basin 01010005 (2008 Draft of 03/10/2008)

Sub-basin 01010005 - Impaired Waters, Category 4-A (Rivers and Streams with Impaired Use)							
ADB Assessment Unit ID	Segment Name/Lake Name	Cause	Seg. Length	Class	TMDL Year	Comments	
ME0101000504_152R01_01	Meduxnekeag River Below confluence with S Branch	Phosphorus (Total) 2471		Class B 11 Class B	2471	EPA approved TMDL 3/8/2001	
Sub-basin 01010005 - Impaired Waters, Category 5-A (Rivers and Streams Impaired by Pollutants Other Than Those Listed in 5-B Through 5-D)							
ME0101000501_149R_01	Prestile Stream above dam in Mars Hill	DDT	15.78	Class A	2020	5D-lagacy DDT sources	
ME0101000501_149R_01	Prestile Stream above dam in Mars Hill	Benthic-Macroinvertebrate Bioassessments (Streams)	15.78	Class A	2008	Eutrophic lake source; Agricultural NPS source; non-attainment of biocriteria; AVGWLF modeling and TMDL report under contract	
ME0101000501_149R_01	Prestile Stream above dam in Mars Hill	Nutrient/Eutrophication Biological Indicators	15.78	Class A	2008	AU is also listed as 5d for legacy DDT sources	
ME0101000501_149R_01	Prestile Stream above dam in Mars Hill	Oxygen, Dissolved	15.78	Class A	2008	sources	
Sub-basin 01010005 - Impaired Waters, Category 5-D (Rivers and Streams Impaired by Legacy Pollutants)							
ME0101000501_149R	Minor tributaries to Prestile Stream above dam in Mars Hill	DDT	77.2	Class B		legacy DDT contamination	
ME0101000501_150R	Prestile Str and tributaries entering below dam in Mars Hill	DDT	95.55	Class B		legacy DDT contamination	
ME0101000504_152R01_02	Meduxnekeag River	DDT	11	Class B		legacy DDT contamination	
Sub-basin 01010005 - Impaired Waters, Category 5-A (Lake Waters Needing TMDLs)							
ME0101000501	Christina Reservoir (ID 9525, 400 ac)	Impaired Use = Prim. Cont.				TMDL Target = 2009, Priority = 3	

VI. References

- ¹ New England Agricultural Statistics, 2004, U.S. Department of Agriculture, National Agricultural Statistics Service, March, 2005. (County data was prorated to HUC by the percent of a HUC in a county.)
- ² USDA NRCS Social Sciences Discipline, Technical Note 1801, Guide for Estimating Participation in Conservation Programs and Projects, July 2004.
- ³ USDA NRCS Social Sciences Discipline, Social Capital, Technical Note 5.1, March 2002.
- ⁴ USDA NRCS Social Sciences Discipline, Prioritizing Issues or Concerns, Using the Paired Comparison Technique, Issue 11, March 1997.
- ⁵ Maine Watershed Boundary Dataset, May 5, 2008, USDA-NRCS, ArcGIS 9.2 Personal Geodatabase: WBD6_GCS83_ME_05052008_final.mdb.
- ⁶ National Hydrography Dataset, 1:24000, U.S. Geological Survey, ArcGIS Personal Geodatabase: NHD24_01010005.mdb.

VII. Summary Matrices

The Summary Matrix provides an estimation of program participation, the acres of a particular landuse, resource concerns for that landuse and practice to address the resource concerns for that landuse. The final output is an estimate of acres of practices, costs of installation to be used as the basis for future planning for this watershed. Matrices were provided for the major landuses including crop land, forest land and wildlife land.

Resource concerns were provided by a steering group meeting held in a conference room at the Houlton Town Office on May 14, 2008. The Summary Matrix tool only evaluates the 4 major resource concerns identified and is not a comprehensive list of all of the resource problems in the watershed. Due to the location of the watershed, a large portion located in New Brunswick, Canada was not evaluated. The area in New Brunswick is in the lower end of the watershed and may have other resource concerns/problems not previously identified.

Estimates of participation was in part provided by a tool provided by NRCS Social Science Division and by local estimates of past participation. Due to the nature of a rapid watershed assessment, further modification may be required to the input parameters for more accurate estimates of program participation, conservation practices and programs available for implementation.

VII. Summary Matrix – Cropland

WATERSHED NAME & CODE		PRESTILE/MEDUXNEKEAG - 01010005			LANDUSE ACRES		72,199		
LANDUSE TYPE		CROP			TYPICAL UNIT SIZE ACRES		40		
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		60%		
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS				
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Soil Erosion: Ephemeral Gully Erosion	Soil Erosion: Sheet and Rill Erosion	Water Quantity: Excessive Runoff, Flooding, or Ponding	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	
Baseline System					System Rating ->				
Total Acreage at Baseline Level		51,261	15,942	0	15,942	1	2	0	1
Conservation Crop Rotation (ac) 328		46,135	14,348	0	14,348	2	4	1	2
Progressive System					System Rating ->				
Total Acreage at Progressive Level		8,664	7,797	3,214	11,012	4	4	2	3
Contour Buffer Strips (ac) 332		866	780	321	1,101	2	4	1	2
Cover Crop (ac) 340		4,332	3,899	1,607	5,506	1	4	0	1
Critical Area Planting (ac) 342		9	8	3	11	5	5	1	3
Grassed Waterway (ac) 412		173	156	64	220	0	0	0	2
Lined Waterway or Outlet (ft) 468		217	195	80	275	1	0	3	1
Nutrient Management 590		8,664	7,797	3,214	11,012	3	4	0	2
Sediment Basin (no) 350		217	195	80	275	0	0	0	3
Resource Management System (RMS)					System Rating ->				
Total Acreage at RMS Level		12,274	12,274	33,007	45,281	5	5	2	5
Conservation Crop Rotation (ac) 328		12,274	41,201	4,080	45,281	2	4	1	2
Contour Buffer Strips (ac) 332		1,227	1,314	3,214	4,528	2	4	1	2
Cover Crop (ac) 340		6,137	6,570	16,070	22,641	1	4	0	1
Critical Area Planting (ac) 342		31	32	82	113	5	5	1	3
Diversion (ft) 362		6,137	6,137	16,504	22,641	4	2	2	2
Filter Strip (ac) 393		614	614	1,650	2,264	1	1	0	4
Grassed Waterway (ac) 412		245	263	643	906	0	0	0	2
Lined Waterway or Outlet (ft) 468		307	329	804	1,132	1	0	3	1
Nutrient Management 590		12,274	13,140	32,141	45,281	3	4	0	2
Pest Management (ac.) 595		1,227	1,227	3,301	4,528	0	0	0	0
Riparian Forest Buffer (ac) 391		614	614	1,650	2,264	1	1	0	5
Sediment Basin (no) 350		307	329	804	1,132	0	0	0	3
Stripcropping (ac) 585		1,227	1,227	3,301	4,528	3	4	1	3

VII. Summary Matrix – Cropland

CONSERVATION SYSTEMS BY TREATMENT LEVELS	FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
	New Treatment Units	Installation Cost	Management Cost - 3 yrs	Technical Assistance	Total Present Value Cost	Installation Cost	Annual O & M + Mgt Costs	Total Present Value Cost
		75%	100%	20%		25%		
Progressive System Acres Treated	3214.1							
Contour Buffer Strips (ac) 332	321	\$349,532	\$0	\$69,906	\$419,438	\$116,511	\$9,321	\$157,315
Cover Crop (ac) 340	1,607	\$0	\$241,056	\$48,211	\$268,680	\$0	\$80,352	\$131,294
Critical Area Planting (ac) 342	3	\$2,242	\$0	\$448	\$2,690	\$747	\$90	\$1,140
Grassed Waterway (ac) 412	64	\$267,090	\$0	\$53,418	\$320,508	\$89,030	\$7,122	\$120,210
Lined Waterway or Outlet (ft) 468	80	\$1,205	\$0	\$241	\$1,446	\$402	\$161	\$1,105
Nutrient Management 590	3,214	\$0	\$241,056	\$48,211	\$268,680	\$0	\$80,352	\$131,294
Sediment Basin (no) 350	80	\$180,792	\$0	\$36,158	\$216,951	\$60,264	\$7,232	\$91,923
Subtotal		\$800,861	\$482,112	\$256,595	\$1,498,394	\$266,954	\$184,629	\$634,281
Resource Management System (RMS) Acres Treated	33007.2							
Conservation Crop Rotation (ac) 328	4,080	\$0	\$612,071	\$122,414	\$682,212	\$0	\$204,024	\$333,371
Contour Buffer Strips (ac) 332	3,214	\$3,495,315	\$0	\$699,063	\$4,194,378	\$1,165,105	\$93,208	\$1,573,150
Cover Crop (ac) 340	16,070	\$0	\$2,410,562	\$482,112	\$2,686,803	\$0	\$803,521	\$1,312,938
Critical Area Planting (ac) 342	82	\$56,952	\$0	\$11,390	\$68,342	\$18,984	\$2,278	\$28,957
Diversion (ft) 362	16,504	\$61,889	\$0	\$12,378	\$74,266	\$20,630	\$1,650	\$27,854
Filter Strip (ac) 393	1,650	\$1,794,767	\$0	\$358,953	\$2,153,721	\$598,256	\$47,860	\$807,778
Grassed Waterway (ac) 412	643	\$2,670,903	\$0	\$534,181	\$3,205,083	\$890,301	\$71,224	\$1,202,104
Lined Waterway or Outlet (ft) 468	804	\$12,053	\$0	\$2,411	\$14,463	\$4,018	\$1,607	\$11,053
Nutrient Management 590	32,141	\$0	\$2,410,562	\$482,112	\$2,686,803	\$0	\$803,521	\$1,312,938
Pest Management (ac.) 595	3,301	\$0	\$594,130	\$118,826	\$662,215	\$0	\$198,043	\$323,599
Riparian Forest Buffer (ac) 391	1,650	\$2,166,099	\$0	\$433,220	\$2,599,318	\$722,033	\$28,881	\$848,469
Sediment Basin (no) 350	804	\$1,807,922	\$0	\$361,584	\$2,169,506	\$602,641	\$72,317	\$919,227
Stripcropping (ac) 585	3,301	\$337,070	\$0	\$67,414	\$404,484	\$112,357	\$4,494	\$132,031
Subtotal		\$12,402,969	\$6,027,325	\$3,686,059	\$21,601,596	\$4,134,323	\$2,332,629	\$8,833,469
TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS	36221.3	\$13,203,830	\$6,509,437	\$3,942,653	\$23,099,990	\$4,401,277	\$2,517,259	\$9,467,750

VII. Summary Matrix – Forest

WATERSHED NAME & CODE		PRESTILE/MEDUXNEKEAG - 01010005			LANDUSE ACRES		279,056	
LANDUSE TYPE		FOREST			TYPICAL UNIT SIZE ACRES		15	
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		17%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS	CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS			
	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Water Quality: Excessive Suspended Sediment and Turbidity in Surface Water	Water Quality: Harmful Temperatures of Surface Water	Plant Condition: Productivity, Health and Vigor	Fish and Wildlife – Habitat Fragmentation
Baseline System	System Rating ->				1	0	0	-1
Total Acreage at Baseline Level	198,130	163,730	0	163,730				
Access Road (ft) 560	1,321	1,092	0	1,092	1	0	0	-2
Stream Crossing (no) 578	13,209	10,915	0	10,915	2	0	0	-1
Progressive System	System Rating ->				2	0	4	0
Total Acreage at Progressive Level	8,093	7,716	3,096	10,812				
Access Road (ft) 560	21,580	20,597	8,235	28,832	1	0	0	-2
Forest Stand Improvement (ac) 666	540	514	206	721	0	0	5	2
Grade Stabilization Structure (no) 410	5	5	2	7	2	0	0	0
Stream Crossing (no) 578	2,698	2,778	826	3,604	2	0	0	-1
Tree/Shrub Pruning (ac) 660	54	51	21	72	0	0	5	0
Resource Management System (RMS)	System Rating ->				4	3	5	3
Total Acreage at RMS Level	72,834	72,834	31,336	104,170				
Access Road (ft) 560	194,223	195,433	82,353	277,786	1	0	0	-2
Fish Passage (no) 396	510	510	219	729	0	2	0	5
Forest Stand Improvement (ac) 666	4,856	4,881	2,064	6,945	0	0	5	2
Grade Stabilization Structure (no) 410	49	49	21	69	2	0	0	0
Prescribed Forestry (ac) 409	72,834	72,834	31,336	104,170	0	0	5	0
Riparian Forest Buffer (ac) 391	486	486	209	694	5	5	5	5
Stream Crossing (no) 578	24,278	26,467	8,256	34,723	2	0	0	-1
Tree/Shrub Pruning (ac) 660	486	488	206	694	0	0	5	0
WATERSHED NAME & CODE		PRESTILE/MEDUXNEKEAG - 01010005			LANDUSE ACRES		279,056	
LANDUSE TYPE		FOREST			TYPICAL UNIT SIZE ACRES		15	

VII. Summary Matrix – Forest

CONSERVATION INVESTMENT INFORMATION					ESTIMATED PARTICIPATION		17%	
CONSERVATION SYSTEMS BY TREATMENT LEVELS	FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
	New Treatment Units	Installation Cost 75%	Managemen t Cost - 3 yrs 100%	Technical Assistance 20%	Total Present Value Cost	Installation Cost 25%	Annual O & M + Mgt Costs 100%	Total Present Value Cost
Progressive System Acres Treated	3,096							
Access Road (ft) 560	8,235	\$67,941	\$0	\$13,588	\$81,529	\$22,647	\$13,588	\$82,133
Forest Stand Improvement (ac) 666	206	\$46,439	\$0	\$9,288	\$55,727	\$15,480	\$0	\$15,480
Grade Stabilization Structure (no) 410	2	\$7,276	\$0	\$1,455	\$8,731	\$2,425	\$97	\$2,850
Stream Crossing (no) 578	826	\$6,191,931	\$0	\$1,238,386	\$7,430,318	\$2,063,977	\$825,591	\$5,678,224
Tree/Shrub Pruning (ac) 660	21	\$2,322	\$0	\$464	\$2,786	\$774	\$31	\$910
	Subtotal	\$6,315,909	\$0	\$1,263,182	\$7,579,091	\$2,105,303	\$839,307	\$5,779,596
Resource Management System (RMS) Acres Treated	31,336							
Access Road (ft) 560	82,353	\$679,410	\$0	\$135,882	\$815,292	\$226,470	\$135,882	\$821,330
Fish Passage (no) 396	219	\$4,935,435	\$0	\$987,087	\$5,922,522	\$1,645,145	\$197,417	\$2,509,393
Forest Stand Improvement (ac) 666	2,064	\$464,395	\$0	\$92,879	\$557,274	\$154,798	\$0	\$154,798
Grade Stabilization Structure (no) 410	21	\$72,755	\$0	\$14,551	\$87,306	\$24,252	\$970	\$28,498
Prescribed Forestry (ac) 409	31,336	\$470,041	\$0	\$94,008	\$564,050	\$156,680	\$6,267	\$184,117
Riparian Forest Buffer (ac) 391	209	\$274,191	\$0	\$54,838	\$329,029	\$91,397	\$3,656	\$107,402
Stream Crossing (no) 578	8,256	\$61,919,311	\$0	\$12,383,862	\$74,303,173	\$20,639,770	\$8,255,908	\$56,782,239
Tree/Shrub Pruning (ac) 660	206	\$23,220	\$0	\$4,644	\$27,864	\$7,740	\$310	\$9,095
	Subtotal	\$68,838,757	\$0	\$13,767,751	\$82,606,509	\$22,946,252	\$8,600,410	\$60,596,873
TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS	90587.9	\$75,154,667	\$0	\$15,030,933	\$90,185,600	\$25,051,556	\$9,439,717	\$66,376,469

VII. Summary Matrix – Wildlife

WATERSHED NAME & CODE		PRESTILE/MEDUXNEKEAG - 01010005			LANDUSE ACRES		10,412		
LANDUSE TYPE		WILDLIFE			TYPICAL UNIT SIZE ACRES		100		
ASSESSMENT INFORMATION					ESTIMATED PARTICIPATION		17%		
CONSERVATION SYSTEMS BY TREATMENT LEVELS		CURRENT CONDITIONS	FUTURE CONDITIONS			RESOURCE CONCERNS			
		Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Fish and Wildlife – Inadequate Cover/Shelter	Fish and Wildlife – Inadequate Water	Fish and Wildlife – Habitat Fragmentation	Fish and Wildlife – Imbalance Among and Within Populations
Baseline System		System Rating ->			2	0	1	1	
Total Acreage at Baseline Level		7,393	6,109	0	6,109				
Conservation Cover (ac) 327		739	611	0	611	3	0	2	2
Conservation Crop Rotation (ac) 328		6,653	5,498	0	5,498	2	0	2	2
Progressive System		System Rating ->			5	0	4	4	
Total Acreage at Progressive Level		302	288	116	403				
Stream Habitat Improvement and Management (ac) 395		2	1	1	2	5	0	3	4
Upland Wildlife Habitat Management (ac) 645		302	288	116	403	5	0	5	5
Conservation Cover (ac) 327		106	112	29	141	3	0	2	2
Conservation Crop Rotation (ac) 328		106	141	0	141	2	0	2	2
Irrigation Water Management (ac) 449		15	14	6	20	0	0	0	0
Pasture & Hay Planting (ac) 512		302	288	116	403	2	0	1	1
Resource Management System (RMS)		System Rating ->			5	0	5	5	
Total Acreage at RMS Level		2,718	2,718	1,169	3,887				
Conservation Cover (ac) 327		951	1,072	289	1,360	3	0	2	2
Conservation Crop Rotation (ac) 328		951	1,360	0	1,360	2	0	2	2
Early Successional Habitat Development/Mgt. (ac) 647		951	951	409	1,360	5	0	5	4
Irrigation Water Management (ac) 449		272	272	116	389	0	0	0	0
Pasture & Hay Planting (ac) 512		2,718	2,732	1,155	3,887	2	0	1	1
Riparian Forest Buffer (ac) 391		136	136	58	194	5	0	5	5
Stream Habitat Improvement and Management (ac) 395		54	54	23	78	5	0	3	4
Upland Wildlife Habitat Management (ac) 645		2,718	2,732	1,155	3,887	5	0	5	5

VII. Summary Matrix – Wildlife

CONSERVATION INVESTMENT INFORMATION								
CONSERVATION SYSTEMS BY TREATMENT LEVELS	FUTURE	USDA INVESTMENT				PRIVATE INVESTMENT		
	New Treatment Units	Installation Cost	Management Cost - 3 yrs	Technical Assistance	Total Present Value Cost	Installation Cost	Annual O & M + Mgt Costs	Total Present Value Cost
		75%	100%	20%		25%	100%	
Progressive System Acres Treated	115.9							
Stream Habitat Improvement and Management (ac) 395	1	\$866	\$0	\$173	\$1,040	\$289	\$23	\$390
Upland Wildlife Habitat Management (ac) 645	116	\$0	\$168,075	\$33,615	\$187,335	\$0	\$56,025	\$91,544
Conservation Cover (ac) 327	29	\$6,498	\$0	\$1,300	\$7,797	\$2,166	\$260	\$3,304
Conservation Crop Rotation (ac) 328	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Irrigation Water Management (ac) 449	6	\$0	\$606	\$121	\$676	\$0	\$202	\$330
Pasture & Hay Planting (ac) 512	116	\$34,655	\$0	\$6,931	\$41,585	\$11,552	\$462	\$13,574
	Subtotal	\$42,019	\$168,681	\$42,140	\$238,434	\$14,006	\$56,972	\$109,142
Resource Management System (RMS) Acres Treated	1169.1							
Conservation Cover (ac) 327	289	\$64,977	\$0	\$12,995	\$77,973	\$21,659	\$2,599	\$33,037
Conservation Crop Rotation (ac) 328	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Early Successional Habitat Development/Mgt. (ac) 647	409	\$76,729	\$0	\$15,346	\$92,074	\$25,576	\$1,023	\$30,055
Irrigation Water Management (ac) 449	116	\$0	\$12,203	\$2,441	\$13,601	\$0	\$4,068	\$6,646
Pasture & Hay Planting (ac) 512	1,155	\$346,545	\$0	\$69,309	\$415,855	\$115,515	\$4,621	\$135,743
Riparian Forest Buffer (ac) 391	58	\$76,729	\$0	\$15,346	\$92,074	\$25,576	\$1,023	\$30,055
Stream Habitat Improvement and Management (ac) 395	23	\$34,971	\$0	\$6,994	\$41,965	\$11,657	\$933	\$15,739
Upland Wildlife Habitat Management (ac) 645	1,155	\$0	\$1,680,745	\$336,149	\$1,873,352	\$0	\$560,248	\$915,436
	Subtotal	\$599,950	\$1,692,948	\$458,580	\$2,606,894	\$199,983	\$574,514	\$1,166,712
TOTAL ACRES TREATED / ESTIMATED TREATMENT COSTS	1284.7	\$641,969	\$1,861,629	\$500,720	\$2,845,327	\$213,990	\$631,486	\$1,275,853