Table S1. SARVI Ratio used to classify LULC categories.

Land use class	Not present
Bareland (BL)	-1 < SARVI < -0.05
Semi-Bareland (SBL)	-0.05 < SARVI < 0.14
Low Dense Forest (LDF)	0.14 < SARVI < 0.24
Moderate Dense Forest (MDF)	0.25 < SARVI < 0.35
Dense Forest (DF)	SARVI > 0.35

Table S2. Definition of land use classes used in this study.

Land use class	Not present
Dense Forest (DF)	Areas covered by more than 40% of tree canopy
Moderate Dense Forest (MDF)	Areas covered at least 20 % and less than 40% of tree canopy
Low Dense Forest (LDF)	Areas covered by 10% of tree canopy
Semi-Bareland (SBL)	Areas covered by less than 10% of tree canopy
Bareland (BL)	Areas no vegetation cover consisting of exposed soils

Table S3. Accuracy assessment of classified map of 2018 for all forests under studied.

			Alban Gadeid			
Class name	DF	MDF	LDF	SBL/BL	Total	UA%
DF	9	0	1	0	10	90
MDF	0	23	1	1	25	92
LDF	1	1	30	1	33	90.91
SBL	0	1	1	21	22	95.45
Total	10	24	33	23	90	
PA %	90	95.83	90.91	91.3		
OA %						92.22
Cappa %						91.5
			Alghara			
DF	18	0	1	0	19	94.74
MDF	0	44	2	1	45	93.33
LDF	1	1	55	2	59	93.22
BL	0	1	1	35	37	94.59
Total	19	44	59	38	160	
PA %	94.74	95.45	93.22	92.11		
OA %						93.75
Cappa %						92
			Alkoua			
DF	30	1	1	0	32	93.75
MDF	1	59	2	1	63	93.65
LDF	1	2	67	2	72	93.06
SBL	0	1	1	31	33	93.94
Total	32	63	71	34	160	
PA %	93.75	93.65	94.37	91.18		
OA %						93.5
Cappa %						92
			Ladi			
DF	25	1	1	1	28	89.29
MDF	1	51	3	2	57	89.47
LDF	0	2	59	4	65	90.77
SBL	0	1	0	39	40	97.5
Total	26	55	63	46	190	
PA %	96.15	92.73	93.65	84.78		
OA %						91.58
Cappa %						90

https://doi.org/10.3390/rs17132298

			Mehaila			
DF	27	1	1	1	30	90
MDF	2	50	3	2	56	89.29
LDF	1	2	65	3	71	91.55
BL	0	1	2	40	43	93.02
Total	30	54	70	46	200	
PA %	90	92.59	92.86	86.96		
OA %						91
Cappa %						90
			Shag Addoban			
DF	18	1	0	0	19	94.74
MDF	1	51	1	1	54	94.44
LDF	0	1	73	3	77	94.81
SBL	0	1	2	27	30	90
Total	19	54	76	31	180	
PA %	94.74	94.44	96.05	87.1		
OA %						93.89
Cappa %						91
			Shingil Shariq			
DF	25	1	0	0	26	96.15
MDF	1	40	1	1	43	93.02
LDF	0	1	35	2	38	92.11
SBL	0	1	1	21	23	91.3
Total	26	43	37	24	130	
PA %	96.15	93.02	94.02	87.5		
OA %						93.08
Cappa %						90
			Shingil Gharib			
DF	9	1	0	0	10	90
MDF	0	35	1	1	37	94.59
LDF	0	1	72	3	76	94.74
BL	0	0	2	65	67	97.01
Total	9	37	75	69	190	
PA %	100	94.59	96	94.2		
OA %						95.25
Cappa %						93

Table S4. Accuracy assessment of classified map of 2008 for selected forests.

			Shingil Gharib Forest			
Class name	DF	MDF	LDF	SBL/BL	Total	UA%
DF	9	0	1	0	10	90
MDF	0	34	2	1	37	91.89
LDF	0	1	71	4	76	93.42
SBL	0	0	1	66	67	98.51
Total	9	35	75	71	190	
PA %	100	97.14	94.67	92.96		
OA %						89.47
Cappa %						87.3
			Ladi Forest			
DF	25	1	0	1	27	92.59
MDF	0	52	2	2	56	92.86
LDF	0	2	60	3	65	92.31
BL	0	0	1	39	40	97.5
Total	25	55	63	45	188	
PA %	100	94.55	95.24	86.67		
OA %						89.36

Cappa %						87.2
			Shingil Shariq Forest			
DF	25	1	0	0	26	96.15
MDF	1	40	1	1	43	93.02
LDF	0	1	35	2	38	92.11
SBL	0	1	1	21	23	91.3
Total	26	43	37	24	130	
PA %	96.15	93.02	94.59	87.5		
OA %						93.08
Cappa %						90

Table S5. Accuracy assessment of classified map of 1998 for selected forests.

			Shingil Gharib Forest			
Class name	DF	MDF	LDF	SBL/BL	Total	UA%
DF	8	1	1	0	10	80
MDF	1	33	2	1	37	89.19
LDF	0	1	69	6	76	90.79
SBL	0	1	2	64	67	95.52
Total	9	36	74	71	190	
PA %	88.9	91.7	93.2	90.1		
OA %						86.32
Cappa %						83.4
			Ladi Forest			
DF	24	1	1	1	27	88.89
MDF	1	51	2	3	57	89.47
LDF	0	2	60	3	65	92.31
BL	0	1	0	41	42	97.62
Total	25	55	63	48	190	
PA %	96	92.73	95.24	85.42		
OA %						87.83
Cappa %						85.1
			Shingil Shariq Forest			
DF	24	1	1	0	26	92.31
MDF	1	39	2	1	43	90.7
LDF	0	1	34	3	38	89.47
SBL	0	1	1	21	23	91.3
Total	25	42	38	25	130	
PA %	96	92.86	89.47	84		
OA %						86.54
Cappa %						83.8

Table S6. Accuracy assessment of classified map of 1988 for selected forests.

			Shingil Gharib Forest			
Class name	DF	MDF	LDF	SBL/BL	Total	UA%
DF	7	2	1	0	10	70
MDF	1	32	3	1	37	86.49
LDF	0	2	66	8	76	86.84
SBL	0	1	3	63	67	94.03
Total	8	37	73	72	190	
PA %	87.5	86.5	90.4	87.5	87.5	
OA %						84.21
Cappa %						81.2
			Ladi Forest			
DF	23	2	1	1	27	85.19
MDF	1	50	3	3	57	87.72

LDF	0	2	58	5	65	89.23
BL	0	1	1	39	41	95.12
Total	24	55	63	48	190	
PA %	95.83	90.91	92.06	81.25		
OA %						85.89
Cappa %						83.2
			Shingil Shariq Forest			
DF	23	2	1	0	26	88.46
MDF	1	38	2	2	43	88.37
LDF	0	2	33	3	38	86.84
SBL	0	1	2	20	23	86.96
Total	24	43	38	25	130	
PA %	95.8	88.37	86.84	80		
OA %						85.38
Cappa %						82