



Gulf Coast Joint Venture

LAGUNA MADRE INITIATIVE AREA



See www.gcjv.org for information about the Gulf Coast Joint Venture (GCJV) bird habitat conservation partnership.

This document summarizes priority bird conservation actions for the Laguna Madre (LM) Initiative Area.

Detailed descriptions and derivations are available at https://www.gcjv.org/GCJV_Resources.php.

Gulf Coast Joint Venture Office

📍 USGS Wetland and Aquatic Research Center
700 Cajundome Blvd.
Lafayette, LA 70506

☎ 337-262-7001

✉ barry_wilson@fws.gov



WATERFOWL

MIGRATING AND WINTERING WATERFOWL

Species addressed in GCJV planning: Mallard, Northern Pintail, Gadwall, American Wigeon, Green-winged Teal, Blue-winged Teal, Northern Shoveler, Mottled Duck, Canvasback, Redhead, Ring-necked Duck, Greater & Lesser Scaup, Lesser Snow Goose, and Greater White-fronted Goose

Population Objectives: 367,947 ducks

	Green-winged Teal	American Widgeon	Canvas-back	Gadwall	Mallard	Northern Pintail	Northern Shoveler	Redhead	Ring-necked Duck	Scaup	Wood Duck	Blue-winged Teal	Total
Laguna Madre	6,447	19,273	1,751	4,928	0	86,077	18,485	127,468	1,596	75,856	0	26,067	367,947
GCJV	872,407	292,350	99,473	909,944	353,636	1,234,195	558,322	469,561	301,867	1,412,432	325,958	1,369,053	8,199,196

Habitat Objectives:

	Acres
Non-tidal freshwater wetlands	
Aug–Oct	15,476
Nov–Mar	37,472
Seagrass meadows	7,932



Biological Foundation: Bio-energetic models yield acreage of foraging habitats necessary to meet dietary demands of population objectives.

Conservation Activities:

- Reduce erosion of coastal marsh through shoreline and bank stabilization.
- Minimize saltwater intrusion and enhance productivity of coastal marsh through hydrologic restoration.
- Maintain or improve levees and water-control structures on managed marshes.
- Provide water and vegetation management on palustrine emergent wetlands.
- Protect, enhance, and create freshwater wetlands within 10 km of seagrass beds.



Non-breeding Waterfowl Research Priorities:

- Determine the importance of distributed sanctuary in habitat conservation for wintering waterfowl and its implication for food limitation.
- Determine the effects of coastal marsh restoration on sustainability of waterfowl habitats.

BREEDING WATERFOWL

Species Addressed in GCJV Planning: Mottled Duck

Population Objectives: A spring population of 211,865 individuals as measured from the Western Gulf Coast Mottled Duck Breeding Population Survey, including 103,385 in Louisiana and 108,480 in Texas.



Habitat Objective: Not yet available

Biological Foundation: Factors limiting recruitment are primary constraints to population growth.

Conservation Activities:

- Create and restore large blocks of nesting habitat in agricultural lands and coastal marsh.
- Use hydrologic restoration to maintain low salinity (<6–8 ppt) and enhance the quality of brood-rearing habitats in coastal marsh.
- Restore wetlands and ensure reliable water to provide brood-rearing habitat from mid-April through July in palustrine emergent wetlands.
- Remove predators in targeted locations.

Breeding Waterfowl Research Priorities:

Measure the effectiveness of habitat conservation actions to benefit Mottled Duck breeding productivity, including breeding propensity, nest success, and brood survival.

LANDBIRDS

Priority Species: Northern Bobwhite, Loggerhead Shrike, LeConte's Sparrow, Seaside Sparrow, Cerulean Warbler, Golden-winged Warbler, and Swainson's Warbler

NORTHERN BOBWHITE

Population Objective: 103,178 birds for TX portion of Bird Conservation Region (BCR) 37

Habitat Objective: 1,580,687 acres for TX portion of BCR 37

Desired Habitats: Early successional habitat, 3,500 to 7,000 acres in size including agricultural fields, pastures, native prairies, and grass-brush rangelands.

Biological Foundation: Average spring home range size dictates acres needed to support population objectives.

Conservation Activities:

Maintain 15-30% woody vegetation in grasslands.

Conduct disturbance (e.g., fire, disking, prescribed grazing, mowing) every 3 years.

Figure 1. GCJV Bird Conservation Regions



LOGGERHEAD SHRIKE



Population Objectives: 22,036 birds during winter (i.e., 6,336 Resident, 15,700 Migratory)

Habitat Objective: 141,860 acres in LM

Biological Foundation: Territory size(s) dictate(s) acreage needed to support population objectives.

Conservation Activities:

Preserve native prairie areas; maintain low, thick shrubs in fields (i.e., 3-10 shrubs or small trees per acre).

LECONTE'S SPARROW



Population Objective: 18,110 birds during winter in LM

Habitat Objective: 18,110 acres in LM

Biological Foundation: Winter density estimates dictate acreage needed to support population objective.

Conservation Activities: Manage ≥ 500 acre blocks of native grassland with burned and unburned areas; prescribed burns should occur on a 3-year rotation.

SEASIDE SPARROW

Population Objective: 65,000 birds in U.S. BCR 37 and GCJV portion of BCR 26

Habitat Objective: 650,000 acres in U.S. BCR 37 and GCJV portion of BCR 26

Biological Foundation: Breeding territory size dictates acreage needed to support population objective.

Conservation Activities:

Create and/or restore marsh habitat, in blocks $\geq 10,000$ acres, containing areas of medium height smooth cordgrass, interspersed with ponds, tidal creeks, and bare ground areas.

Plug selected ditches in marshes that have been ditched.

Create marsh-elevation islands, with shallow water bodies and scattered woody shrubs, using dredged material.



CERULEAN WARBLER, GOLDEN-WINGED WARBLER, SWAINSON'S WARBLER

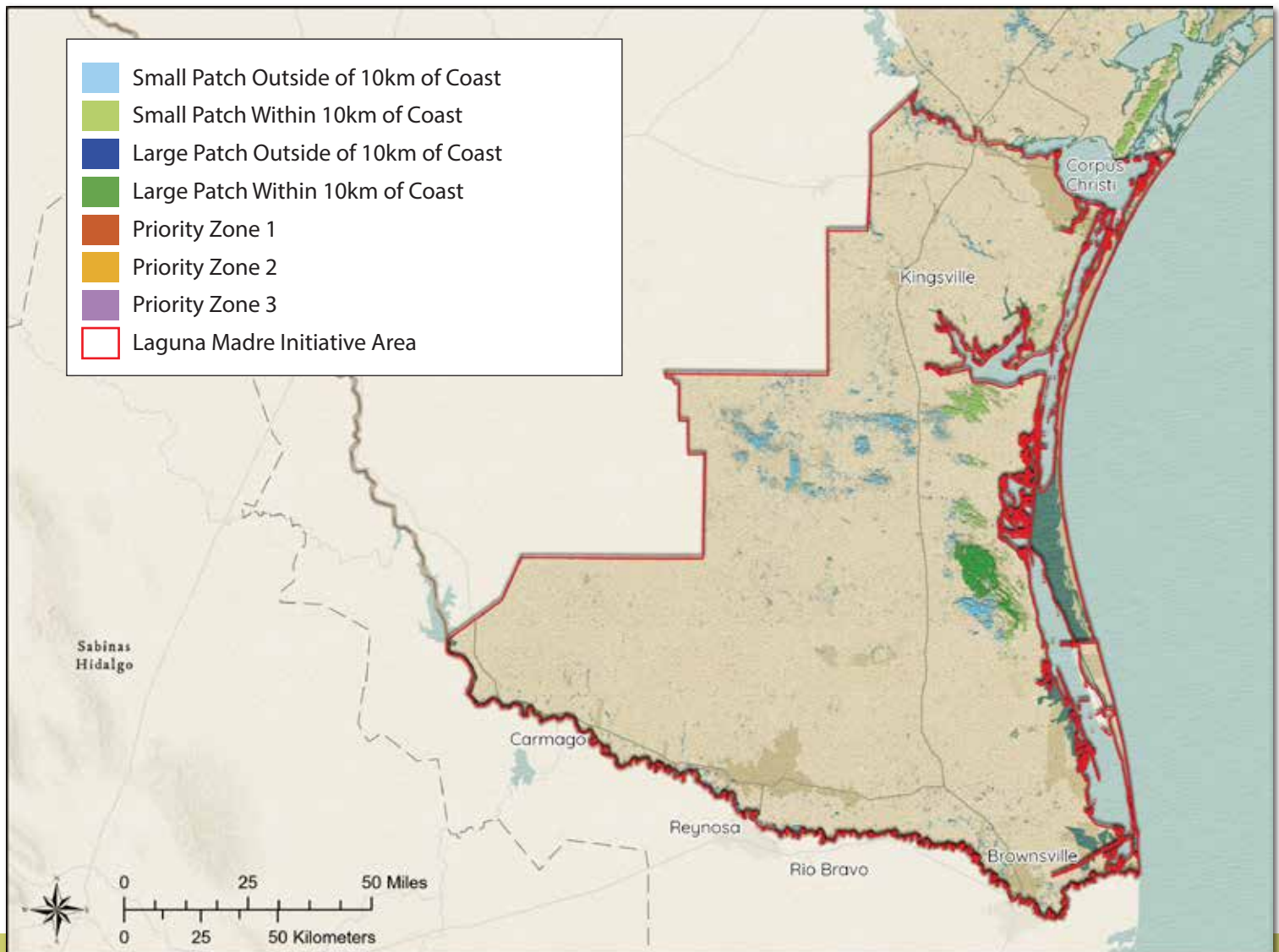
Population Objective: Not yet available

Habitat Priorities: Large forest patches ($\geq 10,000$ acres) close to the Gulf of Mexico. Figure 2 illustrates habitat prioritization.

- Priority Zone 1 > Consistent abundant use
- Priority Zone 2 > Consistent common use
- Priority Zone 3 > Sporadic common-abundant use

Highest priority are large patches ($\geq 10,000$ acres) within 10 km of the coast. Second priority are large patches more than 10 km from the coast. Small patches are also identified.

Figure 2. Bird Conservation Region 37 Forest Habitat within Priority Zones by Patch Size and Distance from Coast



Landbird Research Priorities:

Estimate seasonal survivorship rates for Seaside Sparrow, and the significance of winter survival and habitat needs limiting GCJV populations.

Simulate Seaside Sparrow population response to predicted habitat changes, such as projected sea level changes.

Identify the habitat components of ideal forest landbird migration stopover habitat.

Test and refine assumptions of LeConte's Sparrow habitat-population model.

Determine primary limiting factors and desired habitat characteristics of Loggerhead Shrikes in the Gulf Coast Joint Venture region.

SHOREBIRDS

Priority Species: Wilson’s Plover, Snowy Plover, Long-billed Curlew, Hudsonian Godwit (Spring only), Western Sandpiper, Stilt Sandpiper, Buff-breasted Sandpiper, and Short-billed Dowitcher.

Population Objectives:

		Beach/Inlet	Coastal Marsh (Including Impounded), Flats and Reefs	Inland Saturated Soil, Shallow Open Water, & Flooded Grassland	Inland Dry Grassland	Population Objective LAG
Spring	Wilson’s Plover	186	293	70	0	549
	Snowy Plover	1,075	1,818	566	0	3,459
	Long-billed Curlew	9,715	23,724	18,862	9,431	61,733
	Hudsonian Godwit	7	196	5,681	406	6,290
	Stilt Sandpiper	2,116	10,541	17,291	0	29,948
	Buff-breasted Sandpiper	0	3	1,123	1,925	3,051
	Western Sandpiper	1,866	9,091	2,178	0	13,135
	Short-billed Dowitcher	225	354	66	0	645
Fall	Wilson’s Plover	346	655	157	0	1,158
	Snowy Plover	1,431	1,416	612	0	3,459
	Long-billed Curlew	15,668	39,648	36,830	18,415	110,561
	Hudsonian Godwit	N/A	N/A	N/A	N/A	N/A
	Stilt Sandpiper	885	7,495	49,299	0	57,680
	Buff-breasted Sandpiper	0	0	4,397	7,538	11,936
	Western Sandpiper	4,034	10,542	2,461	0	17,036
	Short-billed Dowitcher	487	1,873	359	0	2,719

Habitat Objectives:

	LAG Acres ¹	GCJV Total Acres ¹
Fall Beach/Inlet	11,705	44,025
Fall Marsh, Flats, & Reefs	20,984	82,895
Fall Inland Saturated Soil, Shallow Water, & Flooded Grassland	12,622	146,619
Spring Inland Saturated Soil, Shallow Open Water, & Flooded Grassland	7,179	128,635

¹ Acreages represent need for available/open foraging habitat, which varies depending on habitat type.

Biological Foundation: Bio-energetic models yield acreage of foraging habitats necessary to meet the demand of population objective.

Conservation Activities: Provide inland habitat ranging from shallow, flooded fields to mudflats; restore and conserve marshes, tidal flats, oyster reefs, beaches and inlets.

Shorebird Research Priorities:

Determine if Gulf Coast Snowy and Wilson’s Plover breeding populations are more limited by adult survival or productivity; if productivity limits population growth, determine levels of reproductive success needed for population stability.

Improve estimates of carrying capacity/prey density of shorebird habitat in marsh ponds, tidal flats, delta splays, grasslands, beaches, agricultural fields, moist-soil units and other important foraging habitats; determine how prey base availability is affected by cultivation practices, management, chemical amendments and other human activities.

Assess effectiveness of marsh and beach creation through sediment deposition in providing habitat used by shorebirds with abundant prey.

Develop and quantitatively assess best management practices for breeding Wilson’s and Snowy Plovers in the GCJV region, including predator removal or exclusion and disturbance management.



WATERBIRDS

Priority Species: Reddish Egret, Little Blue Heron, Wood Stork, King Rail, Black Rail, Gull-billed Tern, and Black Skimmer. Population and habitat objectives for Wood Stork, Black Rail, Gull-billed Tern, and Black Skimmer are not yet available.

REDDISH EGRET

Population Objective: 2,000 breeding pairs in TX portion of the GCJV

Habitat Objective: Not yet available

Biological Foundation: Estimation of breeding population impacts of specific management treatments applied to specific colonies. (Figure 3)

Conservation Activities:

- Apply colony-specific management actions.
- Create/improve alternate colony sites.
- Improve foraging habitat within 10 km of existing colonies.

Reddish Egret Colony Site	Recommended Action		
	Predator Control	Disturbance Management	Habitat Action
Pelican Island	X	X	X
Shamrock Island		X	
Zigzag Island		X	X
Pita Island	X		X
South of South Bird Is.	X	X	X
Rabbit Island Complex		X	X
East Flats Spoil		X	
Green Island	X	X	
Laguna Vista Spoil		X	X

Figure 3. LM Reddish Egret nesting colonies.

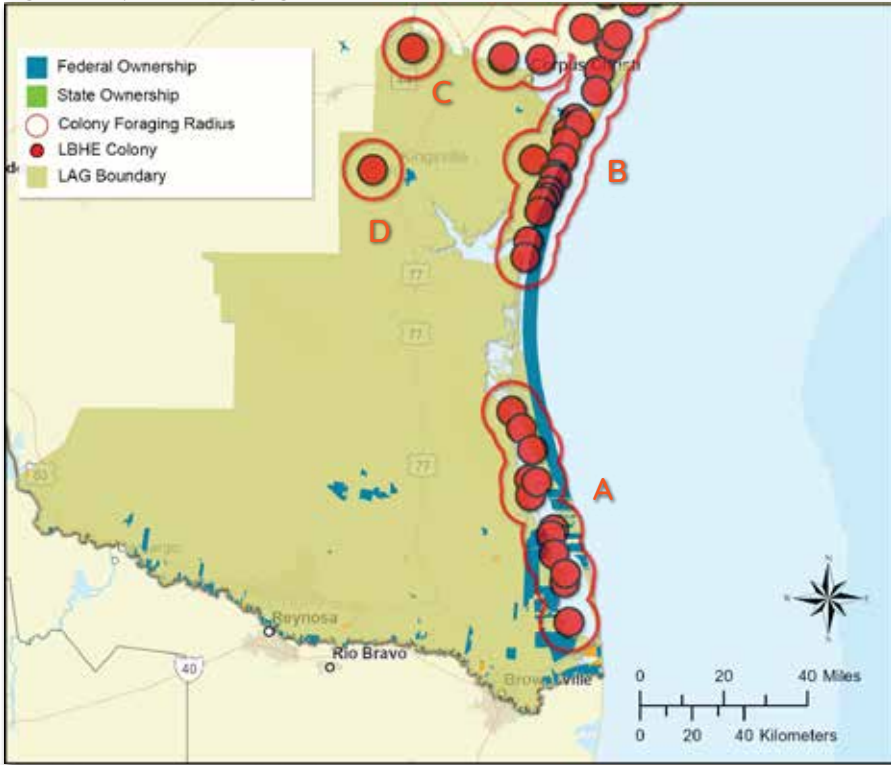


LITTLE BLUE HERON

Population Objective: 164 breeding pairs in LM

Habitat Priorities:

Figure 4. Important foraging habitats identified for each Initiative Area cluster.



Important Foraging Habitats by Colony Cluster

- A. Lower Laguna Madre: **USOW, PEW, EEW**
- B. Guadalupe to Baffin Bay Laguna Madre Portion: **USOW, PEW, EEW**
- C. Wright Gravel Pits: **PSS, PFW**
- D. King Ranch: **PEW**

EEW=Estuarine Emergent Wetland
 PEW=Palustrine Emergent Wetland
 PFW=Palustrine Forested Wetland
 PSS=Palustrine Scrub/Shrub Wetland
 USOW=Unconsolidated Shore-Open Water Ecotones

Biological Foundation: Population is limited by availability of suitable foraging habitat proximal to suitable nesting habitat.

Conservation Activities:

Apply specific management actions to colonies, or clusters of colonies, and associated foraging habitat.



KING RAIL

Population Objective: 2,333 individuals in LM

Habitat Objectives: 2,723 acres of new intermediate marsh converted from brackish and/or saline marsh
 Figure 5 depicts areas of brackish marsh with good structural and hydrological qualities within 1 km of existing fresh and intermediate marsh. Another management option is to create intermediate marsh in open water areas within 1 km of existing fresh and intermediate marsh. Figure 6 shows the 57,345 acres of open water that meet this criteria.

Figure 5. Brackish marsh within 1 km of fresh/intermediate marsh.

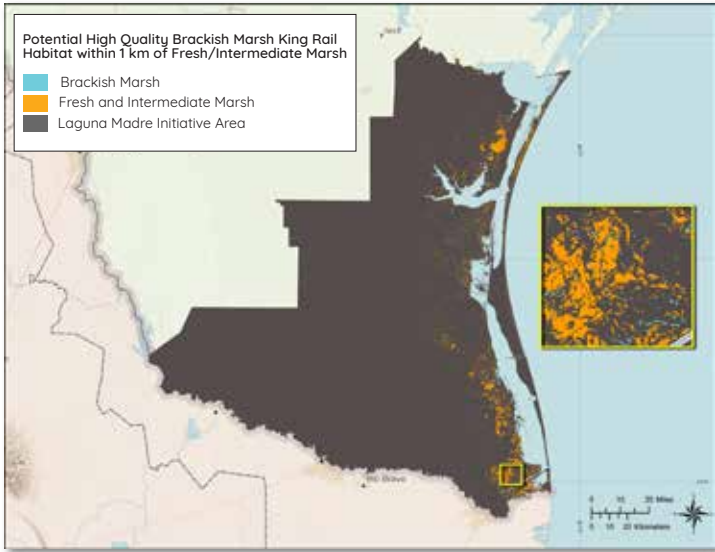
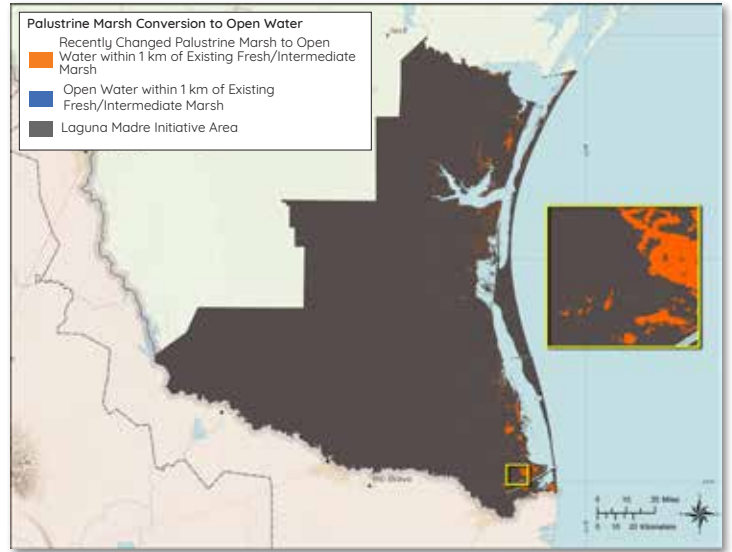


Figure 6. Open water within 1 km of fresh/intermediate marsh.

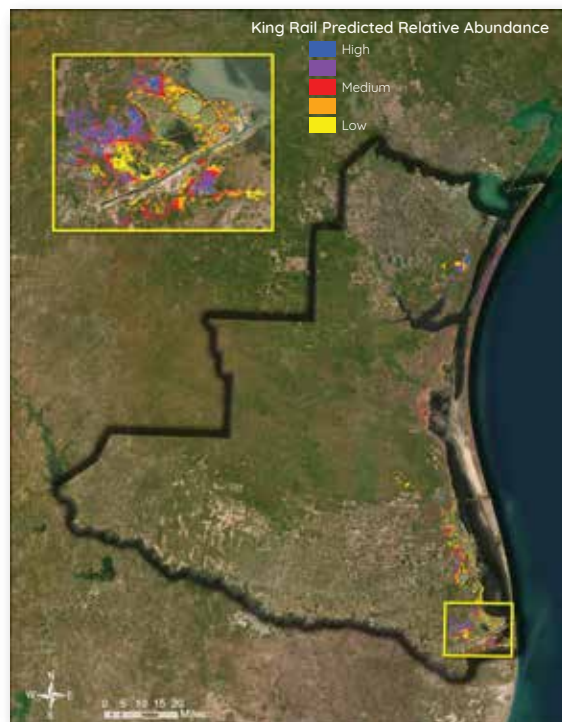


Biological Foundation: Population density estimates dictate acreage needed to support population objectives.

Conservation Activities:

- Reduce salinities of high quality brackish marsh within 1 km of existing fresh to intermediate marshes.
- Restore or create intermediate marsh in open water areas within 1 km of existing fresh to intermediate marshes.
- Maintain complexes of wetland features that support populations.

Figure 7. Predicted relative abundance of King Rail in Intermediate and Fresh Coastal Marsh.



Waterbird Research Priorities:

Validate population response of priority colonial nesting waterbirds (e.g., Black Skimmer, Gull-billed Tern, Reddish Egret and Little Blue Heron) to colony site management measures, including erosion control, dredged material placement, vegetation management, disturbance minimization, and predator control.

Assess status and distribution of Little Blue Heron in the GCJV region, employing a standard repeatable methodology incorporating detection probabilities.

