

**Schuneman Marsh Restoration Project  
Janet and Carl T. Schuneman Preserve  
Izaak Walton League of America – Jaques Chapter**



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**Schuneman Marsh Restoration Project  
Janet and Carl T. Schuneman Wildlife Preserve  
Izaak Walton League of America – Jaques Chapter**

**Project Scope:**

The scope of the Schuneman Marsh Restoration Project (Marsh Project), as presented in the Restoration Proposal (Appendix #) is restoration of the Schuneman Preserve to pre-settlement conditions, and increase public accessibility to the Preserve. These objectives are to be accomplished by a combination of contracting with commercial vendors for products and services and the volunteer efforts of the Jaques Chapter of the Izaak Walton League of America (IWLA). The project will be managed by the Chapter President, or a member appointed and approved in accordance with Chapter rules.

This planning document is intended to lay out the Marsh Project in broad terms. It is to be considered and used as a general guideline for developing the further documentation needed to organize and successfully complete this project. This must be seen as a dynamic document, that is, subject to continual revision and development as the work on the project progresses.

**Project Stakeholders:**

Discussions of the Marsh Project have included a number of individuals and organizations who share an interest, may be affected by, or can have a significant impact or influence on the project. The major stakeholders and their specific interest in the project are:

1. The members of the Jaques Chapter.
2. Residents living adjacent to the Preserve or landowners whose property is adjacent to it. These include people who may have concerns with regard to changes in water levels or other project activities. They also include individuals who may be interested in cooperating or assisting with the project or who may have an interest in selling parcels of land that border the Preserve.
3. Federal, state, county and local government entities. These organizations have significant impact on this project in that they:
  - a. May have regulatory authority over any actions included in the project plan. This would include any permits that may have to be applied for, and supervision by the agency in question.
  - b. May be a source of funding or in-kind support for the project.
  - c. May require reports or detailed plans be submitted at specific points of the project.
4. Civic, outdoor sport and recreation, conservation, or other interest groups. These groups will have an interest in the outcome of the project, and they may be a source of either volunteers or possible additional funding. In any event, their interest in and support of the project will help promote it and improve public

awareness both of the Marsh Project and the broader issues of habitat preservation.

5. Area businesses, in particular development and construction interests. As more development occurs, open space such as Schuneman Marsh Preserve will gain in importance.
6. Individuals and organizations with specific expertise in the subject areas needed to make this project a success. This may include private contractors and consultants, interested individuals, and staff members from a variety of governmental agencies, such as conservation districts, DNR, MPCA, and others.

## **General Project Plan:**

Over the years, the Jaques Chapter has made improvements at the Preserve, usually driven by donations and availability of volunteer effort. This current planning effort will develop a framework to guide those volunteer efforts to most effectively accomplish the overall goals and objectives listed below.

As described in the 2004 Schuneman Marsh Restoration Proposal ([Appendix A](#)), some changes to the land have been made: small excavated pools for open water, layout and mowing of trails, and upland tree and prairie planting. But thirty years of these modest efforts has not forestalled the substantial degradation of the marsh. Through considerable study and discussion during the last two years, the Jaques Chapter has reached consensus on the following goals:

- 1) Restore the Preserve to pre-settlement ecological conditions.
  - a) Eradication of non-native plant species and restoration of oak woodland and wet meadow communities.
  - b) Restoration of hydrology to the portions of the basin that are under the control of the IWLA. A mix of bird habitats is desired, to invite both waterfowl and passerine species to return to this basin.
- 2) Increase accessibility to the site for public use. Being mostly wetland and marsh, natural impediments exist that limit exploration of the Preserve, but improved accessibility should increase public and neighborhood support.
  - a) Improvements to the path system will be needed, for safe access deeper into the property.
  - b) Educational materials about the Preserve's ecosystems and trail signing are desired to increase visitor's awareness, interest, and understanding of the surroundings.
  - c) Additional land acquisition to include the portions of the wetland complex not currently owned by the Chapter will be considered.

## **Existing Conditions:**

### **Site history**

The Schuneman Marsh Preserve was formally donated to the Izaak Walton League of America in 1974. For over half a century prior to that time, the Schuneman family had farmed it, including digging lateral ditches to drain the peat soils towards Ramsey-Washington Judicial Ditch 1. As farming practices and emphasis changed, the Schunemans gradually lessened the intensity of their farming efforts on this parcel, ceasing all farming there by the mid 1970s. Sometime after the 1940s, the low wetlands were “abandoned” to the wild birds and natural processes and neighbors and friends were allowed informal access until the land was formally opened to the public.

[Location map.](#)

### **Landscape perspective**

The Preserve lies on the boundary of two distinct landform regions in Minnesota – the St Croix Moraine and the Anoka Sandplain. The processes of active glaciation and deposition of sediment by glacial melt waters shaped these regions. The St. Croix Moraine is found on the east side of the Preserve. This landscape feature is characterized by a region of gently to moderately rolling hills punctuated by small to large lakes and wetlands. The soils are composed of a complex mixture of sand and gravel and fine silt and clay. The Anoka Sandplain region lies to the west and north of the Preserve. It is characterized as being relatively flat to gently rolling and containing scattered shallow lakes and wetlands. Historically, this region was covered by sand and fine silt sediment deposited by both glacial melt water rivers and glacier bounded lakes. A series of lakes formed in front of the retreating ice mass resulting in the formation of relatively large “lake plain” features. The shoreline of one of the lakes “Glacial Lake Hugo” has been mapped through our site.

### **Soils**

The soils within most of the Preserve are peat soils, specifically Rifle and Cathro Mucks. Along the northern edge of the property is a narrow strip of fine sandy loams or loamy fine sands. This non-wetland area comprises approximately nine of the one hundred acres of the Preserve. A map of soil map units (from Ramsey-Washington Soil Survey) is shown in [Figure X, Pre-Settlement Conditions](#).

### **Presettlement vegetation**

According to the Marschner map of pre-settlement vegetation, this property was classified as Oak Openings and Barrens, further described as scattered trees and groves of oaks of scrubby form with some brush and thickets. The public land survey notes (as mapped by J.Wm.Trygg in 1964) show a marsh and swamp complex, consistent with the peat soil location. The area labeled as “swamp” is consistent with a Tamarack Swamp shown on the Minnesota County Biological Survey of Natural Communities, dated 1987. Most of this swamp lies outside the current Preserve boundary. Excerpts from these maps are in [Figure X, Pre-Settlement Conditions](#).

### **Topography and Hydrographic features**

The site is relatively flat, with the narrow strip of non-wetland along the north boundary being less than eight feet above the wetland. The ground surface of the seasonally flooded wetland area varies less than three feet from the edge of semi-permanently flooded zone to the delineated wetland edge. The lateral drainage ditches are less than two feet below the ground surface. A topographic survey map of the Preserve is in [Figure X, Hydrographic & Topographic Features](#)

Historically in the site area, water most likely flowed via drainageways to Bald Eagle Lake, Rice Creek, and eventually the Mississippi River. The modern drainage system follows this pathway, with man-made ditches common throughout the region. The Preserve falls under the regulatory jurisdiction of the Rice Creek Watershed District.



Intersection of lateral ditch (center of photo) at JD1 (foreground).

### **Existing plant community description and assessment**

Surveys and inventory of the plant communities have been completed by members of the Jaques Chapter as well as by staff of the Rice Creek Watershed District. An earlier inventory from 1996 is attached as an appendix to this document, which listed 93 plant species. The recent inventory generally classified plant community groups but did not include a detailed plant list. The recent inventory used the Minnesota Land Cover Classification System (MLCCS); a map included as **Figure X, Existing Conditions**, shows the MLCCS units. No rare features or protected vegetation species have been documented on the Preserve. Restoration efforts will use the MLCCS map as a base for planning those efforts, as shown on **Figure X, Site Restoration Plan**.

#### Upland (Corresponding to Restoration Units A and E):

The upland areas comprise approximately nine acres along the northern edge of the Preserve. These areas were previously farmed, but are currently planted in a combination of conservation trees (mostly spruce and pine) and a young prairie planting. The groundlayer under the evergreens is mostly absent, with moderate duff layer of needles and occasional smooth brome grass. Scattered oak saplings are present, some intentionally planted, others are natural volunteers. There are a few black walnut trees, dating from the conservation tree planting efforts. Some brush removal and thinning has occurred, primarily removing undesirable species such as buckthorn and honeysuckle. The transition zone between the uplands and wetland has been colonized by species such as reed canarygrass, stinging nettle, boxelder and green ash. The prairie restoration has an abundance of the usual forbs found in mesic restoration mixes, including yellow coneflowers, hyssops, blue vervain, bergamot, bush clover, purple prairie clover, and sunflowers. Grasses include Canada wild rye, Indiangrass, big bluestem, sideoats grama. Surrounding the restored area is a zone of non-native "old field" herbaceous vegetation. The prairie area is managed with prescribed burns, most recently in April 2005.

#### Wet meadow (Corresponding to Restoration Units B and G):

Most of the area north and east of the main lateral ditch is reed canarygrass and stinging nettle dominated wet meadow. However there are pockets of greater diversity scattered throughout. On site visits in the Fall of 2003, at least two species of sedges were seen (probably *Carex stricta* and *C. lacustris*). Forbs included joe-pye weed, boneset, flat-topped aster, goldenrod, marsh aster, and green bulrush. An area of wet meadow also lies west of JD 1, identified as Restoration Unit K. Much of this area experienced a wildfire in April 2005.

Within the larger wet meadow zone are five excavated pools (Restoration Unit D). These pools vary in the vegetation species, with the largest pool having the most diversity. Species seen in 2003 and 2004 include multiple species of sedges (*C. stricta*, *C. lacustris* plus others) river bulrush, spike rush, *Bidens* sp., arrowhead, smartweed, *Rumex* sp, and duckweed. Species diversity was greater along sunlit sides of the ditches and ponds. On the slightly higher elevations surrounding the excavated ponds and on the transition between upland and wetland, are pockets of disturbed lowland forest. They exist where soils hold moisture, due to the high organic matter, but are not fully saturated. Hydrologic disturbances are from both drainage and spoil piles. Vegetation is dominated by cottonwood, green ash, boxelder, willows, with reed canarygrass and stinging nettle understory.



Three Island Pond (excavated), Proposed Restoration Unit D

Emergent marsh (Corresponding to Restoration Units H and J)  
Emergent marsh includes the centrally located cattail and open water zone (Restoration Unit J), following the area shown on the MnDNR's Protected Waters Inventory (82-326P). No alteration is proposed for the portion of the marsh that is within the DNR's jurisdiction. The northeast corner of this area has a transition zone of sedges, Canada bluejoint grass, *Phragmites*, arrowhead, and broad-leaved cattails.

Shrub swamp (Corresponding to Restoration Unit F):

Shrubs exist scattered across the wet meadow, with one large belt near the east boundary. Species include sandbar willow, peach-leaf willow, gray dogwood, red-osier dogwood, nannyberry, American highbush cranberry, and alder. Understory is a mix of reed canarygrass and sedges, similar to the wet meadow zone.



Viburnum species within reed canarygrass

Lowland hardwood forest (Corresponding to Restoration Unit C):

Lowland forest is located along the western half of the north end of the preserve. Species here includes American elm (some diseased), green ash, boxelder, silver maple, cottonwood, common elderberry. Groundlayer includes clearweed, white snakeroot, and avens. There are many snags and downed trees.

Mixed hardwood swamp (Corresponding to Restoration Unit I):

A hardwood swamp is located on the very south edge of the Preserve, with most of the wooded area being on the adjacent property. Species here include many mature tamaracks, but few seedlings, paper birch along the edges, poison sumac, gray and red-osier dogwoods, and buckthorn. The understory is dominated by reed canarygrass with occasional ferns and sedges.

## **Implementation Plan:**

The two distinct objectives in this project, the restoration of the Marsh Preserve and increased accessibility, are somewhat independent of one another. Although the activities of restoration, such as increasing water levels or eradication of invasive plants may affect some accessibility-related activities, the two objectives can be pursued in parallel, and there is a compelling argument to be made for doing so. Figure X, Site Restoration Plan, includes both the ecological restorations and improvements for public access.

Increasing public accessibility gives the overall project visibility. The public becomes more aware that there are significant changes taking place in the Preserve. Further, depending on which accessibility projects are selected, there is potential opportunity for the public to observe the effects of the restoration project first-hand, thereby increasing interest and appreciation for the long-term results.

### **Ecological Restoration:**

The system consists of a diverse plant community complex including upland areas and wetlands. The wetland complex has a broad hydrologic regime from temporarily flooded through permanently inundated.

The primary restoration goal is to increase the diversity of habitats within the Preserve, and establish a high level of function in vegetative integrity across all plant communities in the saturated to temporarily flooded hydrologic regime. Progress will be tracked using the Minnesota Routine Assessment Method for wetland functional assessment. This goal is intended to have the effect of an increase in associated faunal species. **The goal is not based on management for a single keystone species.**

A secondary goal will be to increase the water quality benefits provided by the site. Judicial Ditch 1 (JD1) crosses the site, connecting the drainage from Fish Lake to Bald Eagle Lake, which continues downstream through the Rice Creek Chain of Lakes. Water level manipulations that increase overall saturation will decrease the potential for phosphorus to be flushed downstream. Progress will be measured by monitoring water leaving the larger marsh complex.

The stressors identified in the existing system are partial drainage, an invasive herbaceous species [reed canary grass (*Phalaris arundinacea*)], and absence of a natural fire regime. It is expected that the system has retained potential plant species diversity in the seed bank. Therefore, the approach to restoration emphasizes the removal of stressors. Restoration process will be iterative, requiring monitoring and assessment after each step, before prescribing and initiating the next step.

#### Biological stressor reduction: introduction of prescribed burns

The first restoration activity will be thatch removal from the herbaceous layer. Frozen or saturated ground prescribed burning will be performed prior to any hydrologic restoration

activities and invasive species management activities. The entire grassland under IWLA Jaques Chapter control is proposed for initial treatment. Prescribed burn units will be based upon auxiliary ditch breaks, in 10-20-acre segments. In April 2005, a wildfire burned a portion of the wet meadow on the west side of JD1, and a controlled burn was conducted on the prairie restoration. The wildfire in the wet meadow burned reed canarygrass, sedges and cattails. The burn moved from west to east, and extinguished when it reached JD1. The prairie burn, one month later, was well controlled. Results of these burns will be documented and included in follow-up reviews. Maintenance burns will be done on a rotational basis, to control the establishment of woody vegetation.

#### Biological stressor reduction: reed canary grass control

A rotation of treatments will be performed using herbicide application and prescribed burns. Monitoring will occur concurrently to determine how many rotations achieve the desired effect. The successful outcome will be maintenance of the reed canary grass cover at 10% or less across all plant communities. A synergistic effect is expected with the shift in hydrologic regime that also will be occurring in selected portions of the site (see hydrologic stressor reduction discussion below). The site will be divided into treatment zones for spot spray and over-spray application based upon monitoring after the initial site-wide prescribed burn, and are expected to generally coincide with the initial burn treatment areas (Figure X). See Appendix X for information specifics on reed canarygrass control methods.

Where desirable natural vegetation is present as well as reed canarygrass, over-spraying with selected herbicides is recommended. This may include use of sethoxydim (grass-selective herbicide, useful in areas dominated by sedges) or spot treatment with glyphosate during a narrow window of growth.

In addition to chemical treatment, a shallow scrape to remove the reed canarygrass root mass will be done in one area. This scrape will expose buried seed source, as well as provide an altered hydrologic condition. This site will be monitored to document success.

The map in Figure X shows five areas proposed for reed canarygrass control. Prescribed burn for these areas will be the first step, planned to remove the existing litter and release suppressed vegetation. All existing structures will be protected during the burn.

Area I is approximately six acres between the restored prairie, Auxilliary ditch 2, and JD 1. In addition to 80-90% reed canarygrass, there are many volunteer boxelder, green ash, cottonwood and willows that will be removed either prior to the burn or concurrent with it. Desirable trees (black walnut, oaks) will be marked and protected.

Area IIa is the western section between Auxiliary ditch 2 and the east-west section of the main ditch, and adjacent to JD 1. This area is predominantly reed canarygrass (80%), with some cattails between Three Island Pond and JD 1. Boxelders, ash, and cottonwoods ring the ponds, and will be protected from the burn and herbicide. It is approximately ten acres.

Area IIb is also approximately ten acres, directly east of IIa. In addition to the reed canarygrass (80%) and trees near the ponds, there are many shrubs near the eastern

property line. The fire will be allowed to run through the shrub area, but no effort will be taken to remove all shrubs. Herbicide treatment will target the reed canarygrass, avoiding many of the shrubs. The scrape will be done within this unit, avoiding the shrub areas.

Area III is east of the north-south segment of the main ditch, and south of Area IIb. This area includes the zone of higher quality herbaceous vegetation. A grass-selective herbicide will be used in this area. Existing reed canarygrass coverage is estimated at 50%. The higher quality shrubs (*Viburnum* sp.) may be protected from the burn and spray.

Area IV is south of III, and is dominated by reed canarygrass (70%), wetland shrubs and some cattails. The higher quality shrubs will be protected from the burn.

Area VI is west of JD1, between the cattails on the south and the lowland forest on the north. Part of this area was burned by a wildfire in April 2005, which extinguished when it reached the ditch.

#### Hydrologic stressor reduction: auxiliary ditch removal

This will be accomplished by simple ditch blocks in some of the auxiliary ditches, as shown in **Figure X**. The goal is to shift the current hydrologic regime from temporarily flooded to a saturated regime. The dikes will be constructed a maximum of 1 foot above existing ground surface, allowing for some subsidence and compression of subsurface soils. The relative short length of dike will allow sheet flow across the wetland surface, around the dike during highwater events, without raising the water surface elevation on the larger wetland complex. The locations of the proposed ditch blocks have changed from the locations depicted in the original proposal (Appendix #), to better fit with the proposed walkway system. See Appendix # for recommendation from Natural Resource Conservation Service on selection of location and methodology for ditch blocks.

#### **X-section of ditch-block, graphic depiction**

Due to the numerous surrounding landowners, and the need to continue the Judicial Ditch through the basin, additional impoundment or permanent inundation is not expected.

The reed canarygrass scrape (**figure X**) will lower the ground surface one to three feet over approximately two acres. Based on observed water table levels, this will create an additional area of shallow open water, for much of the growing season. Spoil material from the scrape may be used to fill the auxiliary ditches, upstream of the ditch blocks.

#### Revegetation of wet meadow areas

Based on the increased numbers of sedges seen growing in areas of greater sunlight, active revegetation will be delayed until results of natural revegetation following prescribed burns can be assessed. Restoration will proceed as follows:

- a. Identify areas to be reseeded. Evaluation will be conducted by professional ecologists, with recommendation based on the percentage of naturally regenerating quality species.

- b. Obtain native seed, using local genotype.
  - i. Harvest from priority vegetation on site or from other local wet meadows, using ecologist-supervised volunteer effort
  - ii. Purchase from commercial vendor, selecting species consistent with nearby high-quality sedge meadows.
- c. Organize reseeding effort. Professional ecologists will lead teams of volunteers to assure the seed is planted in suitable areas.
- d. Reseed areas according to plan. Seed will be hand-broadcast.
- e. Monitor progress of the reseeded areas. Professional ecologists and trained volunteers will be utilized for this task, documenting re-occurrences of reed canarygrass and successful growth of sedges and forbs.
- f. The scraped area will be revegetated with emergent and aquatic species.

#### Restoration of lowland forest areas

The lowland forest along the north boundary will have minor maintenance to remove diseased and hazardous vegetation. In the disturbed forested areas, primarily around the ponds, the reed canarygrass understory will be treated following the wet meadow restoration protocols. Woody species will be assessed as to its habitat value. Snags and perches will be preserved to provide a variety of habitats. All undesirable species, such as buckthorn, Tartarian honeysuckle, and siberian elm, will be removed. Diseased trees will be removed following recommended procedures for disease containment. Trees having Dutch elm disease will be dropped or killed, and bark will be removed to halt the transmission of the disease.

#### Restoration of upland areas

Upland revegetation efforts will expand the current restoration efforts. Monitoring and regular maintenance of the prairie restoration area will continue, including periodic prescribed burns. The prairie/oak savanna will be expanded, eventually replacing the existing evergreen shelterbelt. These efforts will be phased, paralleling the restoration of the wet meadow, but will include the following steps:

- a. Develop a plan and timetable for selective cutting of non-native trees.
  - i. Phase cutting of trees along north property line, to maintain a visual screen, balanced against the economics of a complete removal.
  - ii. Maintain a buffer along east property lines, to separate the Preserve from private property
  - iii. Protect existing desirable species (mostly oak saplings)
- b. Control reed canarygrass and smooth brome, as described in Appendix #.
- c. Reseed with native prairie seeds or plants, local genotype, mixed prairie type.
- d. Develop plan and timetable for restoration of oak savanna
  - i. Select species for canopy and understory shrubs
  - ii. Develop plan for acquisition of planting stock, and planting effort
- e. Develop plan and schedule for monitoring and maintaining the restored prairie/oak savanna area.
  - i. Prescribed burns or mowing to control invasive species.

- ii. Reseeding of warm season grasses as needed.
- iii. Monitor restoration success.

### **Expansion of public access to the Schuneman Marsh.**

The IWLA and Chapter members have a strong interest in expanding public access to the Preserve, especially to provide educational opportunities. To accomplish this goal, some structural improvements will be needed. Currently, cultural improvements are limited to mowed trails, a few bridges across ditches, trailside benches, an outdated map and trail observation points, and an open-sided shelter. The mowed trails are dependent upon seasonal conditions, and cannot be mowed during early summer, due to wetness.

Several benches have been placed along the trail, provided by several Eagle Scouts.

Improvements that have been suggested include additional boardwalks (to replace some of the mowed trails), construction of wildlife-viewing blinds, improved trail guides and interpretive signage, and construction of an improved shelter for education programs.

**Figure X** shows the proposed public access features.

Implementation of these improvements will progress as follows:

- a. Identify specific projects to enhance public accessibility and enjoyment of the Marsh habitat.
  - i. Route for trails and improved trail surfaces. Much of the trail will likely be a boardwalk.
  - ii. Focal points for viewing the Preserve, such as construction of a bird observation blind and additional benches.
  - iii. Placement of interpretive signage at key locations
  - iv. Production of a Preserve map, keyed to focal points and interpretive signs.
  - v. Construct an enclosed shelter for educational programs.
  - vi. Develop southern access for neighborhood pedestrian entrance.
  - vii. Acquire adjacent parcels of natural habitat, to better control the spread of exotic species into the restored Preserve. Currently, two significantly sized parcels containing very little buildable land would be likely candidates, on south and west sides of Preserve.
- b. Develop a public access master plan. Determine feasibility and develop phases for the development of each item listed above.
  - i. Determine how each public access project fits with the restoration plan.
  - ii. Assess the costs of the project and the level of volunteer effort needed to complete it.
  - iii. Implement educational components concurrent with restoration, as appropriate.
  - iv. Implementation and completion of educational components post-restoration as detailed in the restoration plan.

### **Permits and Approvals needed**

Burn permit for each grass fire, issued by Grant Fire Marshall in consultation with White Bear Lake Fire Chief.

Wetland alteration permit from Rice Creek Watershed District for ditch blocks and shallow scrape.

Wetland Conservation Act Wildlife Habitat Exemption for ditch blocks (issued by RCWD) No-Loss Determination for proposed boardwalks.

Corps of Engineers Letter of Permit for ditch blocks.

City of Grant grading permit, if earthwork for ditch blocks exceeds 50 cy.

MnDNR letter of approval; DNR Permit not needed as no impact is planned within their jurisdiction.

Seed collection permission from donor-site landowner

**Costs estimates (for initial planning purposes)**

**Habitat restoration**

Prescribed burns: 5-10 acres parcel, up to \$1000 each	\$5000
Removal of evergreens (assumes timber harvest of most trees)	500
Herbicide for reed canarygrass (Vantage/sethoxydim @ ½ gal conc/acre)	\$3500
Professional application of herbicide	\$6000
Revegetation:	
evaluation of need, \$400 for each of 5 areas	\$2000
professional oversight of local seed collection and reseeding,	\$1000
seed purchase from vendor wetland area (\$200/lb, 5lb/A x 50A)	80,000
purchase from vendor, upland (\$300/acre @ 10 A)	\$3000
purchase of woody plant materials	\$1000
professional oversight of volunteer reseeding \$400 for each of 5 areas	\$2000
Sub-total	\$104,000

**Public access**

Boardwalk (9000 linear feet @ \$50/6' segment)	\$75,000
Interpretive signage	\$500
Production of Preserve map	\$500
Enclosed shelter	\$100,000
Southern entrance	\$1000
Sub-total	\$177,000
Acquisition of adjacent, unbuildable parcels	???