Spartina species found in the San Francisco Estuary

**Native:**
- Spartina foliosa, California cordgrass

**Introduced:**
- Spartina alterniflora, smooth cordgrass
- Spartina densiflora, dense-flowered cordgrass
- Spartina anglica, English cordgrass
- Spartina patens, salt meadow cordgrass

Some of the impacts of invasive Spartina:
- Loss of native biodiversity as a result of the competition with native flora, including S. foliosa and Salicornia virginica
- Hybridization with native S. foliosa
- Loss of muddy and channel habitat due to the invasion of Spartina sp.
  - impacting foraging and nesting habitat for numerous shorebirds and waterfowl, including the endangered California clapper rail
  - clogging flood channels
  - increasing rate of sedimentation and marsh elevation

Use this field identification handout to identify non-native cordgrass:

**Spartina alterniflora/hybrids**
- S. densiflora
- S. patens
- S. anglica

**Spartina foliosa**
- "California cordgrass"

**Spartina alterniflora**
- "Smooth cordgrass"

**Field Characteristics**
- Forms initially as round clones, eventually establishing dense stands or meadows
- Stems 60-250 cm tall, 5-14 mm wide
- Stems solitary or in small clumps
- Leaf sheaths at base of culms are a range of shades of maroon color at the base
- Leaf blades 20-55 cm long, 2-25 mm wide
- Flower: July-October
- Inflorescence +/- open
  - 10-40 cm long, 7-22 mm wide
- Branches:
  - 5-30 branches
  - 4.5-13 cm long, 3-5 mm wide
  - appressed
- Elevational range: Lower marsh zone

**Native Range**
- Current distribution Bodega Bay, CA to Baja, CA

**S. foliosa marsh (above) and S. foliosa in bloom (right).**

**S. foliosa inflorescence (right).**

**S. alterniflora clones within native pickleweed (left) and S. foliosa (below).**

**S. alterniflora, S. foliosa and hybrid inflorescence (left to right).**

**Field Identification Guide**

Thank you to the California Coastal Conservancy, National Fish & Wildlife Foundation, CALFED Bay Delta Program, the State Wildlife Conservation Board, and the USFWS Coastal Program for financial support of the Invasive Spartina Project.

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**Spartina densiflora**

*“Dense-flowered cordgrass”*

- **Field Characteristics**
  - Forms dense tufts or mounds
  - Stems 27-150 cm tall, 3-6 mm wide
  - Stems cespitose/clustered in culm
  - Narrow leaf blades inrolled/involute, green-gray in color
  - Leaf blades 12-43 cm long, 4-8 mm wide
  - Flower: April-July
  - Inflorescence compact
    - 6-30 cm long, 4-12 mm wide
  - Branches:
    - 2-20 branches
    - 1-11 cm long, 2.5-6 mm wide
    - appressed
  - Elevational range: mid to high marsh zone

- **Native Range**
  - Chile, South America

**Spartina anglica**

*“English cordgrass”*

- **Field Characteristics**
  - Forms monospecific stands
  - Stems 30-130 cm tall, 3-6 mm wide
  - Stems solitary in small clumps
  - Leaf blades persistent/falling nearly at right angle to stem
  - Leaf blades 36-46 cm long, 11-13 mm wide
  - Flower: July-November
  - Inflorescence erect
    - contracted panicles
    - 12-40 cm long
  - Branches:
    - 2-12 branches
    - 14-21 cm long
  - Elevational range: Low to mid marsh zones. Wide range within Intertidal marsh given variable morphology.

- **Native Range**
  - England, hybrid between England’s native *S. maritima* and introduced *S. alterniflora*

**Spartina patens**

*“Salt meadow cordgrass”*

- **Field Characteristics**
  - Forms dense turf or sod with matted fine stems, often in “cowlicks”.
  - Stems 15-80 cm tall
  - Stems solitary in small clumps
  - Leaf blades inrolled or involute
  - Leaf blades 10-50 long, 1-4 mm wide
  - Flower: Late summer
  - Inflorescence open
    - 10-90 mm wide, 5-22 cm long
  - Branches:
    - separated, ascending to spreading
    - 2-13 branches
    - 1-8 cm long
  - Elevational range: upper salt marsh zone

- **Native Range**
  - Eastern seaboard of the United States

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**Invasive San Francisco Estuary**

**Invasive Spartina Project**

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[Please send the following form into the address provided below or contact us by email at info@spartina.org.]

Include the following information:

- **Found species**
  - S. alterniflora or hybrid
  - S. anglica
  - S. densiflora
  - S. patens

- **Approximate area (m²)**
- **GPS coordinates** (specify coordinate system)
- **Approximate number of clones**
  - 1 clone
  - 5-15 clones
  - 15-25 clones
  - > 25 clones

**Date seen**

**Direction to plant location. Draw map of plant location if possible or include location on topographical map.**