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## HABITAT AND WILDLIFE GOALS AND OBJECTIVES

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## PURPOSE

- Identify characteristics of habitat and wildlife goal and objectives
- Using CCP Pre-planning tables to write habitat and wildlife goals
- Using CCP Pre-planning tables to write habitat and wildlife objectives
- Writing habitat and wildlife objectives for CCP or HMP

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## GOAL DEFINITION

A descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose, but it does not define measurable units.

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## GOAL CHARACTERISTICS

- Directs work toward achieving purpose(s) of a refuge and System Mission
- Clear and understandable to conservation partners and the public

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## KEY ELEMENTS OF GOALS

- Action
- Subject
- Attribute
- Target

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## GOAL-ACTION

- Protect
  - Keep from being damaged or injured
- Maintain
  - Keep in current state, preserve, retain
- Enhance
  - Improve features/quality, greater quality
- Restore
  - Re-establish, bring back into existence or original condition
- Create
  - Bring into being, produce

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## GOAL-SUBJECT

- **Habitat**
  - Wetland
  - Grassland
  - Shrub-steppe
  - Riparian
- **Wildlife**
  - Species
  - Species group
  - Guild

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## GOAL-ATTRIBUTES

- **Diverse assemblage of native species characteristic of ecosystem**
- **Health, sustainable populations**
- **Recovery of listed species**
- **Community composition**
- **Structure**
- **Function**

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## GOAL-TARGET

- **Natural processes**
- **Historic range of variability**
- **Meet life-history needs of species/species group**

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## WHERE'S THE INFORMATION TO WRITE GOALS?

- Priority Resources of Concern Table
  - "Habitat Type" column
- Examples: Refuge Planning Toolbox
  - <https://intranet.fws.gov/region1/nwrs/refuge%20planning/PVS%20Intranet/0%20Planning%20tools.htm>
    - CCP Preparation Guidance->Prelim. Goals/Objectives

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## EXAMPLE HABITAT GOAL

Protect and maintain seasonal wetland habitats to meet the life-history needs of endangered water birds to promote their recovery as well as benefit other migratory birds.

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## EXAMPLE HABITAT GOAL

**Action:** Protect and maintain seasonal wetland habitats to meet the life-history needs of endangered water birds to promote their recovery as well as benefit other migratory birds.

**Subject:** seasonal wetland habitats

**Attribute:** to meet the life-history needs of endangered water birds to promote their recovery as well as benefit other migratory birds.

**Target:** to meet the life-history needs of endangered water birds to promote their recovery as well as benefit other migratory birds.

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## EXAMPLE HABITAT GOALS

Restore, protect, and maintain native upland and wet prairie habitats characteristic of the historic Willamette Valley.

Enhance, protect, and maintain a diverse assemblage of wetlands habitats characteristic of the historic lower Columbia River.

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## EXAMPLE WILDLIFE GOAL

Protect and maintain healthy, sustainable populations of Columbian white-tailed deer to promote the recovery of this federally endangered species.

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## EXAMPLE SCIENTIFIC INFORMATION GOAL


Gather scientific information (inventories, monitoring, research, assessments) in support of adaptive management decisions on the refuge under the other WH Goals.

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## OBJECTIVE DEFINITION

A concise statement of what to achieve, how much to achieve, and when and where to achieve it. Objectives are derived from goals and they provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies.



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## OBJECTIVES GET SMART

- Specific
- Measurable
- Achievable
- Results oriented
- Time fixed




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## SPECIFICITY

Provide clear wording easy to understand and hard to misinterpret. Provide specificity by including the following:

- WHAT will be done
- WHEN will it be done
- WHERE it will be done
- WHY it will be done (benefitting species).

Avoid or minimize using general phrases like “maintain high-quality habitat” because these phrases are subject to interpretation.

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## MEASURABLE

Ask the following questions:

- What can be monitored to assess progress toward achieving this objective?
- Can it be measured reliably in a cost effective way?
  - Accuracy (hitting the bulls eye)
  - Precision (variability in measurements)

Some level of monitoring is essential for adaptive management.

Keep in mind:  
*“Everything that can be counted does not necessarily count; everything that counts cannot necessarily be counted.”* Albert Einstein

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## ACHIEVABLE

Assess limiting factors including:

- Abiotic factors
  - Soils or topography
  - Surface or subsurface hydrology
  - Water quantity or quality
  - Contaminants and other pollution
  - Climate and climate change
- Habitat conditions on or surrounding the refuge
  - Patch size
  - Fragmentation and connectivity of habitats
  - Buffers between other land uses that have negative impacts
  - Fires, storms, and other catastrophic events
  - Predation
  - Invasive species
  - Disease

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## ACHIEVABLE (CONT)

Assess limiting factors including:

- Lack of capital resources on the refuge
  - Funding
  - Personnel
  - Equipment
  - Infrastructure (e.g., dikes, levees, control structures, pumps)
- Administrative requirements
  - 404 and 401 Clean Water Act and Section 10 Rivers and Harbors Act permits
  - Prescribed fire limitations (e.g., smoke management)
  - Other compliance issues (e.g., NEPA, management plans)

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## RESULTS ORIENTED

Specify an end result. For a habitat-based objective, provide a detailed description of the desired habitat conditions (quantity and quality) to be achieved through refuge management.

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## TIME FIXED

Clearly state the time period so it is not open-ended. It is acceptable to include a range of completion dates for flexibility. Consider developing an implementation schedule for objectives and/or strategies.

- “Within 5 years of CCP approval”
- “Throughout the lifetime of the CCP”

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## OBJECTIVE-ACTION

- **Protect**
  - Keep from being damaged or injured
- **Maintain**
  - Keep in current state, preserve, retain
- **Enhance**
  - Improved features/quality, greater quality
- **Restore**
  - Re-establish, bring back into existence or original condition
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  - Bring into being, produce

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## OBJECTIVE-SUBJECT

- **More specific than the goal**
  - **Aquatic Habitats Goal (8 Objectives)**
    - Salt flats, mudflats, and playas
    - Palustrine, emergent marsh
    - Seasonal wetland/wet meadow complex
    - Cold, ephemeral springs and associated springbrooks
    - Cold, perennial springs and associated springbrooks
    - Thermal springs and associated springbrooks
    - In-channel habitat within coldwater streams
    - Reservoirs and associated waterways
  - **Riparian woodlands and aspens stands Goal (3 Objectives)**
    - Willow-dominated riparian woodland
    - Early successional aspen
    - Mid- to late-successional aspen

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## ATTRIBUTES IN A HABITAT OBJECTIVE

Consider the following parameters:

- Cover
- Density
- Frequency
- Biomass
- Vertical structure
- Area or patch size
- Connectivity
- Seral stage (early, mid, late)

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## ATTRIBUTES IN A POPULATION OBJECTIVE

Consider the following parameters:

- **Total population**
- **Age structure**
- **Sex ratios**
- **Recruitment rates**

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## WHERE'S THE INFORMATION TO WRITE OBJECTIVES?

- Priority Resources of Concern Table
  - "Habitat Structure" column
- Examples: Refuge Planning Toolbox
  - <https://intranet.fws.gov/region1/nwrs/refuge%20planning/PVS%20Intranet/0%20Planning%20tools.htm>
    - CCP Preparation Guidance>Prelim. Goals/Objectives

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Habitat Species	Habitat Type	Habitat Description	Life History / Management	Other Breeding Species
Shoreland Bird	Subdominated Forest with late succession with short overstory (Shoreland Bird/Willow Sycamore)	Short tree canopy with late succession of native species, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly
Willow Sycamore	Subdominated Forest early succession, willow (Willow Sycamore)	Early successional, willow dominated, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly
Shoreland Bird	Subdominated Forest with late succession (Shoreland Bird/Willow Sycamore)	Short tree canopy with late succession of native species, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly

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### EARLY SUCCESSION BOTTOMLAND FOREST OBJECTIVE

Enhance and annually maintain 687 acres of early succession willow and red-osier dogwood dominated bottomland forest for the benefit of migratory and resident landbirds, native reptiles, and amphibians. Attributes of this habitat include the following:

- 30%-80% cover in shrub layer (3-12 feet tall) with scattered herbaceous openings
- <20% canopy of overstory trees (>12 feet tall)

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Habitat Species	Habitat Type	Habitat Description	Life History / Management	Other Breeding Species
Shoreland Bird	Subdominated Forest with late succession with short overstory (Shoreland Bird/Willow Sycamore)	Short tree canopy with late succession of native species, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly
Willow Sycamore	Subdominated Forest early succession, willow (Willow Sycamore)	Early successional, willow dominated, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly
Shoreland Bird	Subdominated Forest with late succession (Shoreland Bird/Willow Sycamore)	Short tree canopy with late succession of native species, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly

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### MID TO LATE SUCCESSION BOTTOMLAND FOREST OBJECTIVE

Enhance and annually maintain 622 acres of mid-to late-succession bottomland forest for the benefit of migratory and resident landbirds, native reptiles, and amphibians. Attributes of this habitat include the following:

- >50% cover in shrub layer (>75% cover of native shrubs) including red-osier dogwood, snowberry, Douglas' spirea, serviceberry, red elderberry, Indian-plum, cascara, rose
- >50% canopy cover in overstory including black cottonwood and Oregon ash.

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Habitat Species	Habitat Type	Habitat Description	Life History / Management	Other Breeding Species
Shoreland Bird	Subdominated Forest with late succession with short overstory (Shoreland Bird/Willow Sycamore)	Short tree canopy with late succession of native species, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly
Willow Sycamore	Subdominated Forest early succession, willow (Willow Sycamore)	Early successional, willow dominated, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly
Shoreland Bird	Subdominated Forest with late succession (Shoreland Bird/Willow Sycamore)	Short tree canopy with late succession of native species, canopy cover > 20% of landscape (US FWS 2000)	Shrub layer	Long spines (Spartan) willow, blackberry, black hawthorn, grape, rose, rose holly, p. p. (Spartan), rose holly

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### ASH-DOMINATED BOTTOMLAND FOREST OBJECTIVE

Enhance and annually maintain 158 acres of Oregon ash-dominated bottomland forest for migratory and resident landbirds, native reptiles, and amphibians. Attributes of this habitat include the following:

- >50% canopy cover of overstory trees dominated by Oregon ash
- 20% cover in shrub layer consisting of native floodplain species (e.g., Douglas' spirea, red-osier dogwood)
- 50% cover in herbaceous layer consisting of native species (primarily Carex and nettles)

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## OTHER IMPORTANT CONSIDERATIONS FOR OBJECTIVES

- Focus upon habitat objectives with species benefitting
- Show acres for EACH refuge in objectives
  - Separate objectives
  - One objective with a, b, and c acres for x, y, and z refuges.
- Address invasive, undesirable, and pest species where needed
  - Address IPM planning requirements
- Population objectives (as needed)
  - Species identified in plans— primarily T&E species with recovery targets
  - Species and numbers specified in refuge purpose
  - Predator control will be a **controversial** strategy

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## OTHER IMPORTANT CONSIDERATIONS FOR OBJECTIVES (CONT)

- Enhance/maintain and restore/maintain a habitat type
  - One objective to enhance/maintain x acres and restore/maintain y acres
  - Separate objectives
  - If restoration needs >15 years, then separate objectives
    - **Restore/maintain objectives should reflect habitat quality at the end of the CCP.**
- It's okay to have objectives for ag management (farming)
- Don't forget about in-stream and riverine habitats
- Provide as much specificity as possible
  - Available literature and/or refuge specific information
  - Less actively managed...less specificity

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## EXAMPLE - ACRES FOR EACH REFUGE IN A HABITAT OBJECTIVE

Throughout the life of the CCP, provide and intensively manage **100 and 200 acres** of seasonal wetland habitat for loafing/foraging Hawaiian stilts throughout the year on **James Campbell NWR and Pearl Harbor NWR**, respectively, with the following characteristics:

- Open water (1-6") and mudflat (saturated and dry) interspersed with 30-60% cover of emergents (e.g., cattail, bulrush) and other vegetation such as grasses (e.g., *Leptochloa*, *Paspalum*), millet (*Echinochloa*), makai, and sedges (*Scirpus*, *Cyperus*, *Fimbristylis*) providing a mosaic
- <25% cover of invasive/undesirable plants including marsh fleabane (*Pluchea*), Saltwort (*Batis maritima*), Water hyssop (*Bacopa monnieri*), CA bulrush, and CA grass
- Abundant benthic and nektonic macro invertebrates and small fish as forage for stilts
- Minimal predation (e.g., mongoose, feral cats, feral dogs, rats, bullfrogs, cattle egrets)

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## ADDRESSING INVASIVES/PESTS IN OBJECTIVES

- **Invasive/undesirable plant species**
  - No species present
  - Threshold (e.g., <25% cover of invasive plants)
- **Mammalian predators (e.g., coyotes, red foxes)**
  - <x coyotes/square mile
  - <y% fawn mortality attributable to coyotes
  - No mountain lions present
- **Minimal presence of bullfrogs and carp**

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## EXAMPLE – INVASIVE PLANT THRESHOLD IN OBJECTIVES

Throughout the life of the CCP, restore and maintain 200 acres of upland prairie on William L. Finley NWR. Upland prairie is characterized by the following:

- >25% cover of native grasses (e.g., Roemer's fescue)
- >5% cover of native forbs (e.g., rose checkermallow, Willamette daisy)
- <25% cover of invasive grasses (e.g., tall oatgrass) and forbs (e.g., meadow knapweed)
- <10% canopy cover of native trees (e.g., Oregon white oak)
- 5% bare ground

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## EXAMPLE – PESTS AND INVASIVE PLANTS IN OBJECTIVES

Throughout the life of the CCP, provide and intensively manage 50 and 100 acres of seasonal wetland habitat for breeding Hawaiian stilts on James Campbell NWR and Pearl Harbor NWR, respectively, during February through July with the following characteristics:

- Open water (<3") and mudflat (saturated and unsaturated) with <25% cover of emergents (e.g., cattail, bulrush) and other associated vegetation such as grasses (e.g., *Leptochloa*, *Paspalum*), millet (*Echinochloa*), makai, and sedges (*Scirpus*, *Cyperus*, *Fimbristylis*) providing a mosaic
- Undulating, irregular bottom topography creating unsaturated mudflats with gradual slopes during drawdown for nesting adjacent to foraging habitat
- Minimal predation (e.g., feral cats, feral dogs, rats, mongoose, bullfrogs, cattle egrets)
- <25% cover of invasive/undesirable plants including marsh fleabane (*Pluchea*), Saltwort (*Batis maritima*), Water hyssop (*Bacopa monnieri*), CA bulrush, and California grass

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## EXAMPLE – AGRICULTURAL MANAGEMENT

Enhance and annually maintain a minimum of 600 acres of improved pasture in core dusky Canada goose use areas. Improved pasture has the following attributes:

- Field size range from 2 to 45 acres with a minimum predator-detection width of 250 feet (75 meters)
- Field (or portion of field) should be adjacent to accessible wetland (within 400 feet/125 meters) or consist of hydric soils
- Mix of desirable non-native grasses (e.g., Kentucky bluegrass, perennial ryegrass, timothy and orchard grass) and forbs (e.g. clover) with a height of <6 inches by October 1
- Invasive species composition <20% cover (except for mowed/grazed reed canarygrass)
- Limit human disturbance when duskys are present (Oct 1 to March 15)

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## POPULATION OBJECTIVE

Protect and maintain a minimum total population of 300 CWT deer on the refuge with approximately 125 on the Mainland Unit, 125 on Tenasillahe Island Unit, and 50 on Wallace and Crims Islands units to benefit the recovery of this federally listed species.

- >45 fawns:100 does (annually)
- <60% fawn mortality by coyotes
- No mountain lion predation



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## ENHANCE/MAINTAIN OAK WOODLAND OBJECTIVE

Enhance and annually maintain 85 acres of oak woodlands for migratory and resident landbirds as well as other wildlife on Ridgefield NWR. Oak woodland has the following attributes:

- 40%-80% canopy cover with non-oak cover <10%
- Mean dbh of oaks >21 inches, with 20% of oaks > 28 inches
- 5 mature oaks/acre
- 55% cover of native grasses
- 25% cover of native forbs
- No blackberry present



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## RESTORE OAK WOODLAND OBJECTIVE

Restore 10-12 acres of oak woodlands for migratory and resident landbirds as well as other native wildlife on Ridgefield NWR. Oak woodland has the following attributes:

- Mean dbh of oaks >4 inches
- 5 oaks/acre
- 55% cover of native grasses
- 25% cover of native forbs
- No blackberry present

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## IN-STREAM OBJECTIVE

For all perennial streams, restore or maintain, where appropriate, the following INFISH standards:

- Maximum water temperatures below 59F within adult holding habitat and below 48F within spawning and rearing habitats
- >20 pieces per mile of large (>12" diameter and >35 ft long) woody debris in forested systems
- >80% of the banks stable in non-forested systems
- >75% of the lower banks with <90 degree angle in non-forested systems
- Width/depth ratio <10 (mean wetted width divided by mean depth)
- Pool frequency of 96 pools/mi for wetted width of 10 ft, 56 pools/mi if wetted width 20 ft, 47 pools/mi if wetted width is 25 ft

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## SCIENTIFIC INFO OBJECTIVES

- Objective – inventories (**Prioritized list**)
  - Species list (relative abundance/season of use)
- Objective – monitoring (**Prioritized list**)
  - Habitat response to management/restoration activities
  - Wildlife response
  - Effects of refuge use activities (compatibility)
- Objective – research and scientific information needs (**Prioritized list**)
  - Management-based research
  - Soil survey
  - Hydrological/topographic assessments
  - GIS layers (e.g., vegetation)

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## MONITORING OBJECTIVE

Conduct monitoring for habitat and wildlife to assess response to refuge management. The following are monitoring activities for Ridgefield NWR in priority order:

- Improved pasture conditions
- Riparian restoration
- Wetland habitat quality
- Water levels in wetlands
- Mid-winter waterfowl survey
- Seasonal use patterns and distribution of dusky Canada geese
- Breeding waterfowl (pair counts and reproduction)
- Breeding grassland birds
- Comprehensive area surveys for sandhill cranes
- Great blue heron nesting (size of nesting colony and identify potential threats to production, including contaminants and disturbance)
- Bald eagle nesting (identify potential threats to production, including contaminants and disturbance)



## RESOURCE GOALS & OBJECTIVES TO USE AS EXAMPLES

### • Refuge Planning Toolbox

- <https://intranet.fws.gov/region1/nwr/refuge%20planning/PVS%20Intranet/0%20Planning%20tools.htm>
  - CCP Preparation Guidance>CCP Alternatives Development
    - Ridgefield NWR
    - JBH and LC NWRs



The screenshot shows a web browser window displaying the 'Refuge Planning Toolbox' website. The page has a green header and a navigation menu on the left. The main content area is divided into several sections, each with a list of links. A red circle highlights the 'CCP Alternatives' link under the 'CCP Preparation Guidance' section. Other visible links include 'Guides to the Toolbox', 'Regional Guidance', 'CCP Planning Basics', 'CCP Types/Work Plans', 'Issues Identification', 'Communications Outreach', 'Communication Plan Examples', 'CCP Drafting Statements', 'CCP Templates', 'CCP Approval Process', 'Planning', 'Plan Management Considerations', 'Cultural Resources Considerations', 'Conservation Examples', 'Federal Laws and Mandates', 'Post-planning Records', 'Pathway Progress/Augmentation History', 'Communication Targets', 'Public Goals/Objectives', 'Planning Updates', 'Followed Program Actions', 'News Publications', 'CCP Alternatives List', 'CCP Alternatives List', 'Historical Alternatives', 'Alternative Methods/Analysis/Adv. Use', 'Resources List/Info', 'CCP Alternatives List', 'Service Manual and Policies', 'General Planning Info', 'CCP Needs Assessment', 'Value Statements', 'Programming Report Examples', 'FACA Guidance', 'Drafting Reports', 'Public Meeting Handouts Examples', 'Meeting Lists', 'CCP Response to Comments', 'CCP Implementation/Monitoring', 'Other Special Designation Areas', 'CCP Controlling Conditions Planning', and 'Contingency and Mitigation Study'.

