

1 **Note to Reviewers:** *This handout presents draft changed circumstances and unforeseen*
2 *circumstances text that will constitute a section Chapter 6, Plan Implementation, of the Yolo*
3 *NHP document.*

4 **Changed Circumstances**

5 Ecological conditions in the Plan Area are likely to change as a result of future events and
6 circumstances that may occur over the term of Yolo NHP implementation. The section identifies
7 changes in circumstances that are reasonably foreseeable and that could adversely affect Yolo
8 NHP species and natural communities, consistent with the “changed circumstances” provisions
9 of ESA regulations and in the NCCP Act. USFWS regulations define changed circumstances as
10 “changes in circumstances affecting a species or geographic area covered by a conservation plan
11 that can reasonably be anticipated by plan developers and the [USFWS and NMFS] and that can
12 be planned for...” (50 C.F.R. §17.3) and the NCCP Act defines changed circumstances as
13 “...reasonably foreseeable circumstances that could affect a covered species or geographic area
14 covered by the plan.” (Fish and Game Code §2805(c)). To ensure successful implementation of
15 the Conservation Strategy, the Yolo NHP also identifies measures designed to respond to these
16 anticipated future changes.

17 The changed circumstances provisions of the Yolo NHP are intended to address reasonably
18 foreseeable events, both inside and outside of the Plan Area, that may impede or prevent the
19 Yolo NHP from achieving its biological goals and objectives within the Plan Area. The Yolo
20 NHP identifies a range of potential changed circumstances, including events or conditions that
21 may cause population-level declines in covered species, such as new invasive species, or that
22 may substantially degrade habitat functions, such as flooding and climate change.

23 To address the potential for changed circumstances, the Yolo NHP identifies funding
24 commitments for remedial measures (see Section XX, *Implementation Costs*). In the event that
25 changed circumstances occur, the Implementing Entity will implement the remedial measures
26 identified in this section. However, the Yolo NHP sets out the range of financial commitments,
27 which includes limitations on funding to remediate changed circumstances. As such, remedial
28 measures for changed circumstances will be implemented within the levels of funding set out in
29 the Yolo NHP for these purposes.

30 In the event of such changed circumstances, the Implementing Entity will implement the
31 remedial measures described in this section. The following describes the process for identifying
32 the occurrence of changed circumstances, the changed circumstances that will be addressed by
33 the Yolo NHP, and the remedial measures that would be implemented in response to such
34 occurrences.

35 **Process to Identify Changed Circumstances**

36 The occurrence of a changed circumstance will generally become apparent to the Implementing
37 Entity through information gained from system-wide or effectiveness monitoring, scientific
38 study, or by notification received from another party (e.g., a levee failure reported by a

1 reclamation district). With indication that a changed circumstance has occurred, or is likely to
2 occur, the Implementing Entity will take immediate steps to investigate and confirm the
3 occurrence of the event. If a changed circumstance appears to have occurred, the Implementing
4 Entity will contact USFWS and DFG to confirm the changed circumstance. The Implementing
5 Entity will notify the Yolo NHP Permittees and relevant supporting entities of the changed
6 circumstance. [**Note to Reviewers:** “supporting entities” are those that may be identified as part
7 of the Yolo NHP implementing structure.]

8 After establishing an occurrence of a changed circumstance identified in this section, the
9 Implementing Entity, in coordination with USFWS and DFG, will determine specific remedial
10 actions that are consistent with the responses described in Section XX, *Changed Circumstances*
11 *Addressed by the Yolo NHP*, for the particular changed circumstance and develop a schedule for
12 implementation. After implementing remedial actions, the Implementing Entity will monitor the
13 effectiveness of the measures and report the associated results and findings.

14 ***Changed Circumstances Addressed by the Yolo NHP***

15 **1. Floods**

16 *Nature of the Changed Circumstance*

17
18 The effects of floods on Yolo NHP conservation lands and covered species depend on several
19 factors, including the severity of the flood event, its duration, and the type of habitat affected.
20 Flood events are a natural process that maintain aquatic, riparian, and wetland ecosystems and
21 small flood events are expected have relatively minor effects on protected natural communities
22 and covered species. Furthermore, many of the covered species are either adapted to flooding
23 (e.g., the giant garter snake and western pond turtle), would likely not be present or nesting
24 during winter flood events (e.g., Swainson's hawk, western burrowing owl), or are capable of
25 fleeing flooded areas (e.g., bank swallow, tricolored blackbird). More severe flood events,
26 however, can have deleterious consequences on protected resources, including erosion of
27 protected habitats, deposition of sediment and debris on conservation lands that damage habitat
28 functions for covered species, and loss of vegetation plantings in restored riparian habitats.

29
30 Flood damage to protected natural communities and habitats caused storms at or below a 50-year
31 flood event on a given stream are considered to be a changed circumstance that are reasonably
32 foreseeable over the term of the Yolo NHP. Larger flood events are considered to be an
33 unforeseen circumstance.

34 35 36 *Planned Response*

37 Following a flood event, affected conservation lands will be inspected within 30 days of the
38 event by the Implementing Entity to evaluate the extent of damage to the protected habitats and
39 evaluate the need for implementing actions to rehabilitate affected habitat functions. If the
40 habitat functions are unlikely to naturally reestablish the former conditions through natural

1 processes at a similar or greater rate than with implementation of remedial management actions,
2 the Implementing Entity will identify and implement management actions necessary to restore
3 affected habitat conditions within 1 year of the flood event.

4 5 **2. Drought**

6 7 *Nature of the Changed Circumstance*

8
9 The climate of the Plan Area is characterized by a Mediterranean climate, with cool, wet winters
10 and warm, dry summers. El Niño and La Niña climatic events typically cause large annual
11 fluctuations in precipitation levels (Minnich 2007, Reeve-Morghen et al. 2007). Precipitation
12 primarily occurs in the form of rain from October through April, with very little precipitation
13 throughout the remainder of the year. Drought is a natural part of Mediterranean climates and
14 drought conditions experienced over the term of the Yolo NHP could result in the loss of
15 restored riparian and wetland habitats and Yolo NHP maintained agricultural habitats.
16 Consistent with the East Contra Costa HCP/NCCP, drought is defined as two or more
17 consecutive water years with 75 percent or less than mean seasonal precipitation as measured at
18 the ■ rain gage in the Valley Landscape Unit and as averaged between the ■ gage and ■ gage
19 in the Hill and Ridge Landscape Unit.

20
21 *[Note to Reviewers: additional information describing the expected frequency of drought conditions*
22 *based on historical data over the term of the Yolo NHP will be provided in the next draft of this*
23 *section.]*

24 25 *Planned Response*

26 Yolo NHP conservation land management plans (see Conservation Measure **XX** in Section 5.4,
27 *Conservation Measures*) include drought monitoring and protection measures to minimize the
28 risk of losing restored and agricultural habitats to drought. Preventative measures include the
29 following actions.

- 30
31 ■ Monitoring Yolo County rain data and gages to determine if the seasonal rainfall at the
32 end of March and April indicate a drought (near 75% of mean seasonal precipitation).
33
34 ■ Monitoring habitat restoration sites that are beyond their establishment periods (i.e., no
35 longer sustained by irrigation) for stress due to low soil moisture or high
36 evapotranspiration rates.

37
38 In the event of drought conditions, the Implementing Entity will evaluate habitat restoration sites
39 to assess the degree of effect on habitat development and functions. Following the evaluation,
40 the Implementing Entity will prepare a report that documents effects of drought on restoration
41 sites and identifying management actions that will be implemented through the adaptive
42 management process (see Section 5.8, *Adaptive Management Plan*) to alleviate the effects of
43 drought (e.g., providing supplemental irrigation of riparian plantings). For droughts that affect

1 the availability of water for irrigation of Yolo NHP agricultural habitats, the Implementing Entity
2 will purchase additional water supplies necessary to maintain crop types that support the target
3 habitat functions of the agricultural land or acquire natural habitat areas to replace the habitat
4 functions provided by the affected agricultural habitat.

5

6 **3. Levee Failures**

7 *Nature of Changed Circumstance*

8 During the course of Yolo NHP implementation, levee failures could occur within the Plan Area
9 that may affect benefits to covered species provided by the Yolo NHP. To guide responses to
10 such events, levee failures will be considered a changed circumstance under the Yolo NHP if the
11 failure: (a) significantly diminishes the function of Yolo NHP restored and protected natural
12 communities as habitat for covered species, as jointly determined by the Implementing Entity,
13 USFWS, and DFG or (b) precludes implementation of habitat conservation measures.

14 *Planned Responses*

15 Following repair of the levee, the Implementing Entity will, to the extent practicable, identify
16 and undertake actions through the adaptive management process to restore the degraded or lost
17 Yolo NHP habitat. To the extent feasible, the Implementing Entity will coordinate restoration
18 efforts with the entity or entities with responsibility for repair and rehabilitation of the levee.
19 Should a levee failure occur with no subsequent repair, the Implementing Entity will assess the
20 new habitat conditions to determine the ability of the site to continue to achieve one or more of
21 the Yolo NHP biological objectives. If so, the Implementing Entity will identify and implement
22 revised habitat enhancement and management measures for the affected lands that are conducive
23 to supporting the revised objectives within the funding allocated for the affected unit of habitat.
24 If, under the new conditions, the affected habitat is no longer capable of achieving Yolo NHP
25 biological objectives, no specific responses would be required under the Yolo NHP.

26 **4. Fire**

27 *Nature of Changed Circumstance*

28 Fire is defined as any fire not prescribed by the Implementing Entity on conservation lands that
29 removes a sufficient extent of vegetation such that the intended habitat functions of the protected
30 land for covered species is substantially degraded, as jointly determined by the Implementing
31 Entity, DFG, and USFWS.

32 Fire may substantially degrade the intended habitat functions of natural communities and
33 covered species habitats protected and/or restored under the Yolo NHP. The risk of fire is
34 greatest for protected lands in the Hill and Ridge Landscape Unit, which support extensive areas
35 of natural vegetation. Lands within the Valley Landscape Unit, however, are primarily
36 characterized by intensively managed agriculture, which generally does not provide the
37 conditions for uncontrolled or extensive fire events.

1 *Planned Response*

2 To minimize the risk of fire, the Implementing Entity will identify conservation lands with a high
3 risk of fire (e.g., grasslands situated near roadways) and implement fire risk reduction measures
4 on those lands, including:

- 5 ▪ establishing and maintaining fuel breaks around high risk conservation lands;
- 6 ▪ coordinating with state and local fire agencies to improve fire suppression preparedness
7 for conservation lands; and
- 8 ▪ developing post-fire monitoring plans.

9 In the event of a fire, the Implementing Entity will assess the proportion of the protected habitat
10 area that has burned and its likely effects on habitat use by covered species, will make an initial
11 determination of whether or not a changed circumstance exists, and will notify USFWS and DFG
12 of the fire event. If a changed circumstance is determined to exist, the Implementing Entity will
13 implement the appropriate post-fire monitoring plan for a two-year period following the fire. If
14 over the course of the monitoring period it is determined that vegetation is not recovering
15 sufficiently in the burned area to reestablish the original functions of the affected habitat, the
16 Implementing Entity will develop and implement through the adaptive management process a
17 habitat restoration plan to enhance recovery of the affected habitat area. Elements of habitat
18 restoration plans may include provisions for planting and caring for native vegetation and
19 controlling the establishment of invasive plant species.

20 **5. Invasive Species**

21 *Nature of Changed Circumstance*

22 A changed circumstance that involves the introduction of an invasive species will be considered
23 to have occurred if the Implementing Entity, USFWS, and DFG jointly determine that such a
24 species is present and has been established within the Plan Area and that the presence of the
25 invasive species will substantially diminish the benefits to covered species provided by the Yolo
26 NHP conservation measures.

27 *Planned Response*

28 As described in Section 5.7, *Monitoring and Research Plan*, the Implementing Entity will take
29 steps to detect, through the monitoring program and through collaboration with other responsible
30 entities, the establishment of new invasive species in the Plan Area. If a new invasive species is
31 discovered, the Implementing Entity in coordination with USFWS and DFG will conduct an
32 assessment to determine the possible threats of the invasive species to covered species and the
33 Plan Area ecosystems. The Yolo NHP Implementing Entity, through the adaptive management
34 process, will identify and implement measures to reduce and/or control the adverse effects of
35 new non-native species on the functions provided by habitat restored and protected under the
36 Plan (e.g., control of non-native plant species in restored and protected habitats). If methods to

1 adequately reduce and/or control adverse effects of the non-native species are not available or
2 practicable, the Implementing Entity will identify alternative design, implementation, and
3 management approaches to future habitat restoration actions to avoid or minimize potential
4 adverse effects of the invasive species on covered species. If such modifications are not
5 practicable, the Implementing Entity, through the adaptive management process, will identify
6 and implement alternative conservation measures that provide equivalent levels of benefit to
7 applicable covered species.

8 **6. Long-Term Changes in Precipitation and Temperature**

9 *Nature of Changed Circumstance*

10 Long-term changes in precipitation and temperature will be considered a changed circumstance
11 in the event that such changes in the timing and amount of rainfall and ambient air temperature
12 in the Plan Area as a result of climate change are of a magnitude sufficient, as jointly determined
13 by the Implementing Entity, USFWS, and DFG, to diminish the benefit to covered species
14 provided by Yolo NHP restored and protected natural communities.

15 *Planned Response*

16 Changes in precipitation and temperature patterns may affect vegetation composition and
17 structure of Yolo NHP protected, enhanced, and restored habitat areas. In the event of this
18 changed circumstance, the Implementing Entity will identify and implement actions through the
19 adaptive management plan to the extent such actions would help to moderate the ecological
20 effects of changes in precipitation and temperature. Such adaptive management responses may
21 include expanding the range of environmental gradients to provide for shifting species
22 distributions and habitats. Measures beyond those contemplated by the adaptive management
23 plan would likely be impracticable and ineffective given the magnitude and pervasiveness of
24 such changes within Plan Area and, as such, are not provided for under the Yolo NHP.

25 **8. Toxic or Hazardous Spills**

26 *Nature of Changed Circumstance*

27 Toxic or hazardous spills will be considered a changed circumstance if the spills of chemicals
28 into Yolo NHP restored and protected natural communities could significantly reduce the
29 ecosystem and habitat functions they support as jointly determined by the Implementing Entity,
30 USFWS, and DFG.

31 *Planned Responses*

32 The Implementing Entity will respond to toxic or hazardous spill events that occur in habitat
33 areas that have been protected, enhanced, or restored through Yolo NHP actions. To minimize
34 the potential effects of a toxic or hazardous spill, the Implementing Entity will develop a toxic
35 and hazardous spill response plan in coordination with responsible regulatory entities (e.g., local,

1 state and federal specialized response teams) to guide its initial responses on detection of a spill
2 event.

3 For a spill event that is caused by a Yolo NHP action, the Implementing Entity will coordinate its
4 response with DFG's Office for Oil Spill Prevention, the Regional Water Quality Control Board,
5 and other state or federal regulatory entities as appropriate to the nature of the spill event to
6 curtail the immediate spread and minimize the effects of the spill. The Implementing Entity will
7 also identify and undertake management measures sufficient to remediate the effects of the toxic
8 substance on covered species and affected habitats (i.e., removal or isolation of the material) and
9 restore the ecological functions of the degraded habitat. If the affected habitat areas cannot be
10 feasibly and effectively restored, the Implementing Entity, through the adaptive management
11 process, will identify and implement measures to contain the ecological effects of the spill and
12 compensate for the loss of habitat functions at other locations that provide equivalent or greater
13 ecological benefits to the affected covered species.

14 If the spill event is not caused by a Yolo NHP action, the Implementing Entity, will coordinate
15 with responsible regulatory agencies and the party(ies) responsible for the spill event to identify
16 the measures that will need to be funded and/or undertaken to adequately remediate the effects of
17 the spill and restore the ecological functions of the affected habitat. The Implementing Entity
18 will ensure that any such remediation and restoration actions are conducted in an appropriate
19 manner.

20 **9. New Species Listings**

21 *Nature of the Changed Circumstance*

22 The USFWS or DFG may list additional species as threatened or endangered under the ESA or
23 CESA (including designated CESA candidate species) that are not Yolo NHP covered species. In
24 the event that USFWS or DFG lists a species not covered by the Yolo NHP, the provisions of
25 this changed circumstance will be automatically triggered.

26 *Planned Response*

27 Upon a new listing of a species under State or federal endangered species laws, the
28 Implementing Entity will undertake the following measures:

- 29 • Evaluate the potential impacts of covered activities on the newly-listed or candidate
30 species and conduct an assessment of the presence of suitable habitat in areas of potential
31 effect.
- 32 • Implement measures to avoid impacts to the newly listed species until such time as the
33 Yolo NHP has been amended to include the newly listed species as a covered species.

34 In the event that a species not covered by the Yolo NHP becomes listed as threatened or
35 endangered or designated as a candidate species, or is proposed or petitioned for listing, the

1 Implementing Entity may request that USFWS and DFG add the species to the relevant take
2 authorizations issued pursuant to the Yolo NHP. In determining whether to seek take coverage
3 for the species, the Implementing Entity will consider, among other things, whether the species is
4 present in the Plan Area and if the covered activities could result in the take of the species. If
5 such take coverage is sought, the Yolo NHP and its authorizations will be amended.
6 Alternatively, the Implementing Entity, on behalf of the Permittees could seek new and separate
7 take authorizations.

8 **Unforeseen Circumstances**

9 The USFWS and NMFS define unforeseen circumstances as those changes in circumstances that
10 affect a species or geographic area covered by an HCP that could not reasonably have been
11 anticipated by the plan participants during the development of the conservation plan, and that
12 result in a substantial and adverse change in the status of a covered species (50 C.F.R. §17.3; 50
13 C.F.R. §222.102). Under ESA regulations, if unforeseen circumstances arise during the term of
14 the Yolo NHP, USFWS may not require the commitment of additional land or financial
15 compensation, or additional restrictions on the use of land, water, or other natural resources other
16 than those agreed to in the Plan, unless the Yolo NHP permitted entities consent.

17 Within these constraints, USFWS may require additional measures, but only if: (1) the USFWS
18 proves an unforeseen circumstance exists; (2) such measures are limited to modifications of the
19 Yolo NHP's operating conservation program for the affected species; (3) the original terms of
20 the Plan are maintained to the maximum extent practicable; and (4) the overall cost of
21 implementing the Yolo NHP is not increased by the modification. USFWS bears the burden of
22 demonstrating that unforeseen circumstances exist. A finding of unforeseen circumstances must
23 be clearly documented, based upon the best available scientific and commercial information and
24 made considering certain specific factors (see 50 C.F.R. §17.22(b)(5)(iii)(C); 50 C.F.R.
25 §222.307(g)(3)(iii)). If such a finding is made and additional measures are required, the Yolo
26 NHP permitted entities will work with USFWS to appropriately redirect resources to address the
27 unforeseen circumstances.

28 Similarly, unforeseen circumstances are defined in the NCCP Act as changes affecting one or
29 more species, habitat, natural community, or the geographic area covered by a conservation plan
30 that could not reasonably have been anticipated at the time of plan development, and that result
31 in a substantial adverse change in the status of one or more covered species (Fish and Game
32 Code §2805(k)). The NCCP Act further provides that, in the event of unforeseen circumstances,
33 DFG shall not require additional land, water, or financial compensation or additional restrictions
34 on the use of land, water, or other natural resources without the consent of the plan participants
35 for a period of time specified in the Implementation Agreement. However, such assurances are
36 not applicable in those circumstances in which DFG determines that the plan is not being
37 implemented consistent with the substantive terms of the Yolo NHP Implementation Agreement
38 (Fish and Game Code §2820(f)(2)).