From: Sierra Club Grazing Core Team
To: Sierra Club staff & volunteers (particularly those involved with sustainable-energy/climate-change campaigns, and commercial grazing on public lands)
Subject: Allan Savory’s proposed application of “Holistic Management” to grasslands, including desert grasslands, for the purpose of increasing sequestration of atmospheric carbon
Date: April 2, 2013
Contact: Mike Hudak, Leader, Grazing Core Team, 607-240-5225, mailto:mike.hudak@gmail.com

Summary
Recent widespread interest in Holistic Management (HM), primarily stemming from Allan Savory’s presentation at the February 2013 Long Beach, CA, TED conference, makes it important that Club members and staff be consistent in their response to calls for application of HM. Savory has received considerable attention for his claim that application of HM to husbandry of ungulate livestock (typically cattle) in the world’s grasslands could sequester sufficient atmospheric carbon to reduce atmospheric carbon concentrations to pre-industrial levels. The Sierra Club’s Grazing Core Team urges the Sierra Club to reject HM as a tactic to reverse climate change for the following reasons:

1) independent scientific research (in contrast to anecdotes from promoters and users of HM) since the early 1980s has not shown HM to perform better than other grazing management methods,
2) applications of HM have produced mixed results, but in arid regions worldwide have often led to further environmental degradation,¹
3) Savory’s characterization of a “desertified” grassland is contradicted by well-established scientific understanding of desert ecology, particularly as regards biological soil crusts, and
4) claims of HM’s widespread ability to increase sequestration of atmospheric carbon have not been independently studied and are indirectly contraindicated by recent, peer-reviewed research showing that grazing exclusion in some grasslands actually increases carbon sequestration relative to continued grazing.

Details
Holistic Management (HM) is a general plan for land management promoted by its developer Allan Savory² under one name or another since the 1970s. The best-known application of HM occurs in livestock husbandry. Most attractive to ranchers has been the claim that through the use of HM, they could greatly increase their production of livestock—doubling it or more.

At the February 2013 Long Beach, CA, TED conference, Allan Savory,³ went further, stating that HM applied to husbandry of ungulate livestock in grasslands worldwide could reduce atmospheric concentrations of carbon to pre-industrial levels. This miracle would supposedly occur through the sequestering of atmospheric carbon that would result from the greater production of vegetation in turn resulting from the grazing of livestock. The Sierra Club Grazing Core Team questions Savory’s claim on several grounds.

Savory proposes using domesticated livestock, such as cattle or sheep, to replicate the behavior of migrating native ungulates in grassland ecosystems. In the desert grasslands of the American West, much of which are managed as federal public lands, large herds of large ungulates in any way

resembling cattle have been absent for more than 10,000 years. Consequently, intensive herding of cattle in these regions does not replicate any natural process with which the current native vegetation has evolved.

Savory’s TED talk and the website of his organization (Savory Institute, http://www.savoryinstitute.com/) provide examples of environmental improvement of ranced landscapes after application of HM. Lacking, though, is independent verification of these claims, without which we cannot know whether such improvement occurred because of HM or coincidentally for other reasons. Sierra Club Grazing Core Team member George Wuerthner in his 2002 book Welfare Ranching noted that HM requires much more diligent monitoring of livestock than is typical, particularly for ranching on public lands. The very act of paying greater attention to livestock grazing (and properly responding to on-the-ground conditions) may be the major factor underlying improved environmental conditions.

We also note that versions of HM have been studied by academic researchers since the early 1980s. Results of many such studies have been compiled into what are called “summary” or “synthesis” papers. Particularly notable are such studies by Skovlin (1987)⁵, Holechek et al. (1999)⁶, and Briske et al. (2008).⁷

In general, these authors did not find support for claims that HM with high-stocking rates benefits cattle and the environment. And when stocking rates were comparable to those of other grazing approaches, performance of HM also was not superior.

Perhaps even more damning of HM than the three articles cited above is one by Joseph et al. (2002)⁸ which reviewed the Charter Grazing Trials, of which Allan Savory once wrote “The only trial ever conducted proved what I have always advocated and continue to advocate when livestock are run on any land.” But Joseph et al. in summarizing these Trials stated “Our review of findings from African studies on short-duration grazing including the ‘Charter Trials’ shows a very high similarity to those from North America summarized by Holecheck et al. (2000).” The Holechek et al. (2000) study (as cited in footnote #6) reports that HM (studied as “short-duration grazing”) performed no better than continuous grazing in regard to water infiltration, soil erosion, plant succession, range condition, forage harvest efficiency, and financial return when stocking rates were comparable. And short-duration grazing actually performed worse than continuous grazing when stocking rates were higher!

But although Allan Savory has since the 1970s promoted HM (or its predecessors “Savory Grazing Method” and “Holistic Resource Management”) as the solution to repairing degraded landscapes and increasing the wealth of ranchers, he has now gone one huge step further in his Feb 2013 TED talk by suggesting that HM applied especially to grasslands of Africa and the Middle East is the only hope for mitigating the causes of global climate change.¹⁰ In challenging this claim, we cite peer-reviewed

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¹⁰ Savory’s relevant statements from his Feb 2013, Long Beach, CA, TED Talk: “I remind you that I am talking about most
studies that contraindicate using ANY livestock grazing to increase sequestration of atmospheric carbon. For example:

1) That desert biological soil crusts “… can be dominant sources of productivity and carbon sequestration in extremely dry environments, and they can contribute to soil fertility through the fixation of nitrogen.” These are the same crusts that Allan Savory in his February 2013 TED talk referred to as a “cancer” on the landscape, the destruction of which he advocated through the grazing of livestock.12

2) A study of Leymus chinensis grasslands of China with exclusion of livestock grazing for 3-yr, 8-yr, 20-yr, 24-yr, and 28-yr found the highest amount of carbon sequestration in soil and aboveground biomass after 20 years. Study authors conclude “Grazing exclusion for two decades increased the soil C [carbon] and N [nitrogen] storage by 35.7% and 14.6% respectively, in the 0- to 40-cm soil layer. The aboveground net primary productivity and soil C and N storage were the highest with 24-yr GE [grazing exclusion] and the lowest with free grazing.13

3) Study of a semi-arid grassland in China found “The C stocks in aboveground biomass, belowground biomass and litter were 64–86% (P<0.01), 58–157% (P<0.01) and 55–125% higher (P<0.01), respectively, in grazer excluded grassland than in grazed grassland.” While C in aboveground biomass and surface litter maxed out after grazing exclusion of 22 years, C in roots biomass was maximum after 27 years of grazing exclusion. Grazing exclusion also significantly increased organic carbon (OC) concentration and stocks in the 0–80 cm soil layer. The OC concentration was 6–14% higher (P<0.01), and OC stocks were 49–77% higher (P<0.05) in grazer excluded grassland than in grazed grassland, with highest concentrations and stocks in the 17-year grazing exclusion treatment.14

4) In an Australian semi-arid (12” mean annual precipitation) shrubland, destocking currently grazed areas for 20 years resulted in net C accretion in the order of 6.5 Mg/ha.15

Conclusion
WHEREAS, a generation of independent, peer-reviewed, scientific studies have failed to verify the significant benefits claimed for HM as a land management tool; and

of the world’s land here that controls our fate, including the most violent region of the world, where only animals can feed people from about 95 percent of the land. What we are doing globally is causing climate change as much as, I believe, fossil fuels, and maybe more than fossil fuels. But worse than that, it is causing hunger, poverty, violence, social breakdown and war, and as I am talking to you, millions of men, women and children are suffering and dying. And if this continues, we are unlikely to be able to stop the climate changing, even after we have eliminated the use of fossil fuels.” And “… if we do what I am showing you here, we can take enough carbon out of the atmosphere and safely store it in the grassland soils for thousands of years, and if we just do that on about half the world’s grasslands that I’ve shown you, we can take us back to pre-industrial levels.”

12 Allan Savory’s relevant statement from his Feb 2013 TED Talk pertaining to biological soil crusts reads: “But if you do not look at grasslands but look down into them, you find that most of the soil in that grassland that you’ve just seen is bare and covered with a crust of algae [a.k.a., “biological soil crusts”], leading to increased runoff and evaporation. That is the cancer of desertification that we do not recognize till its terminal form.”
WHEREAS, peer-reviewed studies demonstrating that desert biological soil crusts (targeted for destruction by HM’s developer Allan Savory) sequester atmospheric carbon and nitrogen, and whose disruption decreases organism diversity, soil nutrients, soil stability, and organic matter,\(^{16}\) and

WHEREAS, peer-reviewed studies demonstrating that exclusion of livestock grazing in grasslands increases carbon sequestration relative to such grazing;

THEREFORE, the Sierra Club Grazing Core Team urges the Sierra Club (and its related entities, e.g., *Sierra* magazine) to reject HM as a tool to reduce atmospheric carbon.

To the extent that application of HM to a given situation leads to improved range conditions, the most likely reasons are incidental to, and in spite of, the purported ecological underpinnings of HM—those reasons being improved livestock distribution, improved control of the frequency and severity of defoliation of individual plants, and intensified management, as was pointed out many years ago.\(^{17}\)

Allan Savory’s Feb 2013 TED talk has drawn harsh, widespread criticism from knowledgeable, conservation-minded individuals\(^ {18}\)—criticism indicative of how the Club’s credibility could be diminished by its association with HM in pursuit of combating global climate change.

Signed:

All members of the Sierra Club Grazing Core Team (listed alphabetically)

<table>
<thead>
<tr>
<th>Greta Anderson</th>
<th>Brian Ertz</th>
<th>Mike Hudak, Team Leader</th>
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<tbody>
<tr>
<td>Jim Catlin</td>
<td>Brock Evans</td>
<td>Mark Salvo</td>
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<tr>
<td>Ken Cole</td>
<td>Janet Maxwell</td>
<td>George Wuerthner</td>
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<tr>
<td>Ed Dobson</td>
<td>Anne Millbrooke</td>
<td>Chris Yoder</td>
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<td>Veronica Egan</td>
<td>Wayne Hoskisson</td>
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\(^{16}\) An Introduction to Biological Soil Crusts (updated April 24, 2006), USGS Canyonlands Research Station, Southwest Biological Science Center, Moab, UT, [http://www.soilcrust.org/crust101.htm](http://www.soilcrust.org/crust101.htm) (accessed March 26, 2013)
