

# Agenda

## Adapting to Change: Avoid, Reduce, Restore

Events are at CSU's Western Colorado Research Campus 3170 B ½ Rd., Grand Junction, CO 81503 unless otherwise indicated

Wednesday, Oct. 6th

Field Tour with Dr. Nikki Grant-Hoffman and Danielle Bilyeu Johnston  
Mentorship & Networking Dinner

**Go to [CSSRM.org/events](https://cssrm.org/events) to click on the link to access a google map of the stops.**

12:00 Lunch provided according to your registration [Western CO Research Center/ Orchard Mesa Research Station](#)

1:00-1:15 Leave Western CO Research Center/ Orchard Mesa Research Station

1:35-1:40 Arrive at [parking lot across from Little Park Trailhead](#)

2:30 - 2:45 Depart Little Park

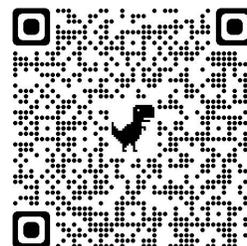
3:15 [Arrive Pit Seeder Site](#)

4:00 See pitter machine

4:20 Depart Pit Seeder Site; Optional stop at [Devil's Canyon Trailhead](#)

5:00 Arrive at Western Co Research Station/ Orchard Mesa Research Station and go to [Glorious Fig.](#)

*The Glorious Fig is located on the south side of Colorado Avenue tucked in an alley between Grand Valley Real Estate Group and The Tru Hotel by Hilton.*



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## Adapting to Change: Avoid, Reduce, Restore

CSU's Western Colorado Research Campus 3170 B 1/2 Rd., Grand Junction, CO 81503

8:00:00 AM	Welcome, housekeeping, and introduction of the conference theme - avoid, reduce, restore.	Retta Bruegger, Nichole Barger
8:30:00 AM	Climate change, ecological drought, and western slope ecosystems	John Bradford
9:15:00 AM	Economic impacts of climate change to ranching	John Ritten
9:45:00 AM	Break – Coffee/ pastries/ fruit are outside in the pop-up tents	
10:00:00 AM	Sustainability and innovation in the livestock industry	Kim Stackhouse- Lawson
10:30:00 AM	Grazing management for resilience on the Colorado Plateau	Eric Thacker
11:00 AM	Discussion break-out	Baili Foster
12:00:00 PM	Presentation of Awards: Conservation Excellence	Stephanie Pitt
2:15:00 PM	Lunch	
1:15:00 PM	The latest, greatest, and what we don't need to do again in rangeland restoration science	Carrie Havrilla
2:00:00 PM	Land Knowings, Lessons and Truths: Indigenous Tellings of Change, Adaptation and Restoration	Doreen Martinez
2:45:00 PM	Break	
3:00:00 PM	Strategies for collaborative conservation with the Intermountain West Join Venture	Mandi Hirsh & Joy Morris
3:30:00 PM	Discussion break-out	Baili Foster
4:30:00 PM	Ending discussion, synthesis and networking	Nichole Barger
5:00:00 PM	Adjourn	

# Speaker Bios

## Adapting to Change: Avoid, Reduce, Restore

October 6-7th, 2021

Speaker Bios (in chronological order)

Nikki Grant-Hoffman | Field Tour

Dr. Nikki Grant-Hoffman currently works for the Bureau of Land Management's National Landscape Conservation System with McInnis Canyons and Dominguez-Escalante National Conservation Areas. Her work is varied based on the needs of the areas where she works but includes restoration after fire, riparian restoration, and wildlife habitat monitoring. Before joining the Bureau of Land Management, she worked for the National Park Service and U.S. Fish and Wildlife Service. Her academic career included work in Florida, Colorado, Alaska, and New Zealand.

Danielle Bilyeu Johnston | Field Tour

Danielle grew up in the Houston area and has lived in Colorado since 1998. She holds a PhD in Ecology from Colorado State University. Since 2007 she has worked for Colorado Parks and Wildlife researching ways to improve habitat. Her favorite projects involve trying new tools for restoration, often borrowing ideas from agriculture. She lives in Rifle with her husband, 2 kids, a cattle dog, and 7 chickens.

John Bradford | Climate change, ecological drought, and western slope ecosystems

John is an ecosystem ecologist with the USGS who studies dryland ecosystems in the context of global change. He focuses on understanding how changing climate, disturbance regimes, and land use practices influence vegetation structure, plant communities, and ecosystem services in dryland environments. John works with resource managers to identify adaptive strategies for sustaining these ecosystems in a changing world.



COLORADO STATE UNIVERSITY  
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John Ritten | Economic impacts of climate change to ranching

Dr John Ritten is a professor at University of Wyoming in the department of Agricultural and Applied Economics specializing in natural resource economics and production economics. He has degrees from Arizona State University, New Mexico State, and Colorado State. He grew up in the Black Hills of South Dakota, and is particularly interested in areas where agricultural production and natural resource use overlap.

Kim Stackhouse-Lawson | Sustainability and innovation in the livestock industry

Dr. Kim Stackhouse-Lawson is a professor in the department of Animal Sciences at Colorado State University and the Director of CSU AgNext. CSU AgNext utilizes a multidisciplinary approach to advance sustainable solutions for animal agriculture. Prior to leading CSU AgNext, Kim was the Director of Sustainability for JBS USA where she was responsible for coordinating the company's corporate sustainability program and strategy. Kim also served as the Executive Director of Global Sustainability at the National Cattlemen's Beef Association where she developed the industry's sustainability program. Kim received her PhD in Animal Science from the University of California, Davis and was a postdoctoral fellow at Kansas State University College of Veterinary Medicine Beef Cattle Institute. She was awarded as the 2018 Distinguished Young Alumni by the UC Davis College of Agriculture and Environmental Sciences. She and her husband, Spencer live on the eastern plains of Colorado and have two sons, Weston and Callan.

Eric Thacker | Grazing management for resilience on the Colorado Plateau

Eric Thacker grew up in the Uintah Basin in North Eastern Utah, he received his MS (Range science) and PhD (Wildlife science) at Utah State University. After completing graduate school, he moved to Oklahoma where he worked as a rangeland scientist for 2 years for the USDA Southern Plains Range Research Station in Woodward, OK and then a 1 ½ years at Oklahoma State University. In 2013 he returned to USU and as the Rangeland Management Extension specialist at Utah State University, his research and extension programs include rangeland restoration, managing grazing during drought, wild horse impacts and management, cattle distribution, and public land management grazing management.



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Carrie Havrilla | The latest, greatest, and what we don't need to do again in rangeland restoration science

Dr. Caroline (Carrie) Havrilla (she/her) is an Assistant Professor of Rangeland Ecology and Management in the Department of Forest and Rangeland Stewardship at Colorado State University. Dr. Havrilla's research program broadly seeks to understand how biotic interactions, global change, and ecological restoration shape patterns of biodiversity and ecosystem functioning across drylands. She is also interested in how this knowledge can be applied to support effective land management, decision-making, and public policy in a changing world. In her free time, Dr. Havrilla enjoys hiking, coffee shops, cooking, and spending time with family.

Doreen Martinez | Land Knowings, Lessons and Truths: Indigenous Tellings of Change, Adaptation and Restoration

Dr. Doreen E. Martinez is Mescalero, Apache and Pennsylvania Dutch, born in San Antonio, Texas; yet, raised in Pennsylvania. Her family was the “only Martinez in the phone book.” She is the fourth of five children and was the first in her family to wander, break ground, gain access, and pursue US formal education. Her expertise is in Indigenous knowledge systems and sociopolitical land and environment issues. She focuses her work on how knowledge, the theoretical grounding of our lives, is engaged and practiced.

Mandi Hirsh & Joy Morris | Strategies for collaborative conservation with the Intermountain West Joint Venture

Mandi Hirsch is currently the Sagebrush Collaborative Conservation Specialist for the Intermountain West Joint Venture. She helps implement the Partnering to Conserve Sagebrush Rangelands effort by working closely with an interdisciplinary team of staff and partners to assist in expanding partnerships and conservation actions across western rangelands. Prior to this, Mandi worked for 7 years as a partner Rangeland and Wildlife Conservationist for the Sage Grouse Initiative led by the USDA Natural Resources Conservation Service in Lander, Wyoming. Mandi and her husband live near Crowheart, Wyoming on their farming and ranching operation.

# Speaker Bios

## Adapting to Change: Avoid, Reduce, Restore

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Mandi Hirsh & Joy Morris | Strategies for collaborative conservation with the Intermountain West Joint Venture  
*Continued*

Joy joined the IWJV team in 2018 as the lead for the newly established Water 4 Program. Joy founded her career working on water and conservation challenges in Western landscapes. She brings extensive experience previously working as a restoration coordinator for the U.S. Fish and Wildlife Service, the Walker Basin Water Program Director for the National Fish and Wildlife Foundation (NFWF), and the Water Conservation Director for the Walker Basin Conservancy. She has spent her career developing on-the-ground partnerships for land and water conservation working with farmers and ranchers to sustain their operations while achieving mutually beneficial conservation goals. Joy is passionate about strategic conservation through partnerships, developing common ground and trust, and finding creative solutions to support and enhance agricultural opportunities that benefit fish, wildlife, and overall landscape resiliency. Joy has a B.S. in Geology from New Mexico Tech and a M.S. in Hydrogeology from the University of Nevada, Reno. Outside of work, Joy and her family can be found roaming around the West camping, hiking, biking, skiing, and enjoying unique landscapes and beautiful places.

More on Water 4: Water 4 supports partnership-based conservation tailored to the unique opportunities and needs within landscapes. This includes conservation easements, agricultural flood irrigation infrastructure enhancements, fish habitat and big game habitat conservation, mesic habitat work (e.g., beaver dam analogues), stream and riparian restoration, and an array of water management innovations. Water 4 addresses common conservation bottlenecks such as capacity to access funds and implement conservation with private landowners, science and knowledge to guide strategic conservation investments, communications to elevate the message of working wet meadows and cross-boundary efforts, and partnerships to advance conservation.

# Rangeland Restoration Project at Horsethief State Wildlife Area



## Colorado Parks and Wildlife

Danielle Johnston, researcher, [danielle.bilyeu@state.co.us](mailto:danielle.bilyeu@state.co.us)

Ivan Archer, property technician

Derek Lovoi, property technician

- pretreatment plant community: greasewood and cheatgrass
- Aug 2012: grubbed off greasewood, then Plateau @ 4oz/ac
- Nov 2012: seeded native mix with pothole seeder. 2 of 4 polygons also received super-absorbent polymer (SAP)
- ~7ac treated

Pre-treatment





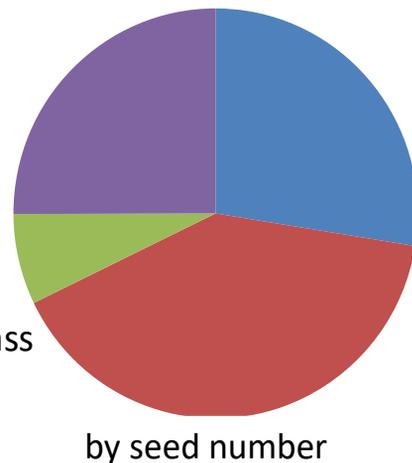
### SEED MIX

- Western yarrow
- Indian ricegrass
- Wyoming Sagebrush
- Fourwing saltbush
- Blue Gramma
- yellow rabbitbrush
- bottlebrush squirreltail
- Streambank wheatgrass
- slender wheatgrass
- Thickspike wheatgrass

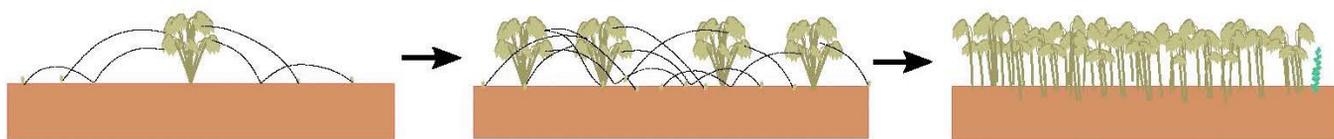
- rubber rabbitbrush
- Aspen fleabane
- Sulfur flower buckwh
- Utah sweetvetch
- needle and thread
- winterfat
- Lewis flax
- western wheatgrass
- Dusty Penstemon
- Palmer penstemon
- Sandberg Bluegrass
- bluebunch wheatgrass

1100 seeds/m<sup>2</sup>  
 22 PLS lbs/ac

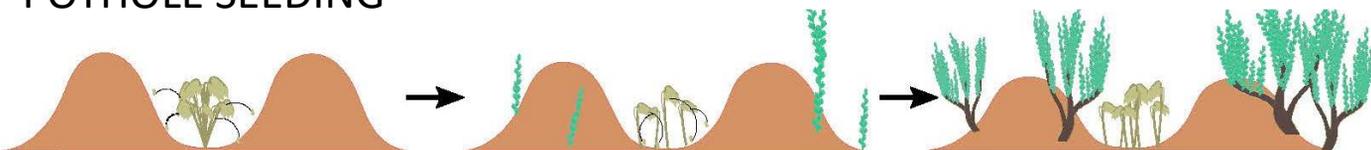
- forb
- bunchgrass
- rhizomatousgrass
- shrub



### FLAT SEEDING



### POTHOLE SEEDING



- Buries weed seeds under mounded soil
- Keeps weed seeds from spreading out
- Traps weed seeds in holes, where wetter conditions favor perennials

# INTERMOUNTAIN WEST JOINT VENTURE

*Strategic and partnership-driven bird habitat conservation*

Together, we accomplish what  
no single entity can do alone.



**WORKING LANDS CONSERVATION:** Seeking win-win solutions for wildlife, agriculture and industry, the Intermountain West Joint Venture (IWJV) is a diverse public-private partnership that creates collaborations to uniquely address the complex conservation challenges of today and the future. Our approach helps sustain agricultural profitability and the economic vitality of rural communities.

Rio de la Vista

## OUR TRACK RECORD

**3.97 MILLION ACRES**  
conserved using key conservation programs

**26 YEARS**  
bringing partners together  
to leverage public and  
private resources



Don Paul

**\$589 MILLION** in  
on-the-ground habitat conservation

**4,000+**  
partnership network

**37:1** ratio of leveraged funds to U.S. Fish  
and Wildlife Service base funding allocation

**IWJV**  
**CHAMPIONS** voluntary, proactive, and highly organized conservation to preclude the need for regulatory actions.

**FACILITATES** listening, learning, and engaging diverse partners in our efforts to ensure relevancy and meet people where they are.

**ADVANCES** strategic, partnership-driven approaches to achieve innovation and measurable success for fish and wildlife, agricultural producers, energy development, and rural communities.

**IMPLEMENTS** a business structure, Management Board composition, and diverse financial portfolio that embodies our entrepreneurial approach to conservation.

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[iwjv.org/2020](http://iwjv.org/2020)



INTERMOUNTAIN WEST  
JOINT VENTURE

We foster collaborative conservation through two integrated initiatives that conserve working lands for fish and wildlife, agricultural producers, energy development, and rural communities.

**90%** OF SAGEBRUSH HABITAT in North America is found within the Intermountain West

**350+** OTHER WILDLIFE SPECIES benefit from the conservation of sagebrush

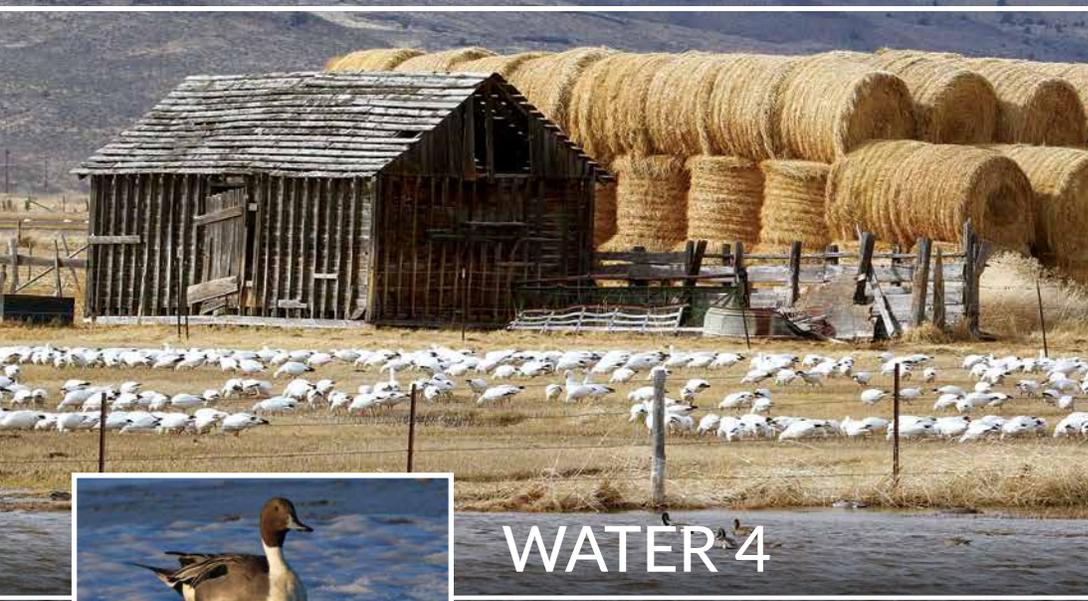
## PARTNERING TO CONSERVE SAGEBRUSH RANGELANDS

**SINCE 2011**, our public-private partnership has played a key role in sage grouse and sagebrush habitat conservation with benefits to wildlife, communities, and local economies. We have helped deliver more than 3.3 million acres of sagebrush habitat restoration and management, including removal of encroaching conifers, installation of rest-rotation grazing systems, restoration of mesic habitats, and treatments to reduce the risk of catastrophic wildfire and the spread of invasive grasses. Learn more at [www.PartnersInTheSage.com](http://www.PartnersInTheSage.com).



Ron Stewart

FWS



**70%** OF LAND in the Intermountain West is **publicly owned**

**70%** OF WETLAND HABITAT in the region is on **private lands**

Larry Kruckenberg



Don Paul

## WATER 4

**THE INTERMOUNTAIN WEST** is mostly publicly owned but approximately 70% of its emergent wetlands occur on private lands. These privately-owned habitats are typically associated with irrigated agriculture. The Water 4 Initiative is conserving wet meadows and “water for” irrigated agriculture, wildlife and fisheries habitat, groundwater recharge, and landscape resiliency in ways that matter to people.



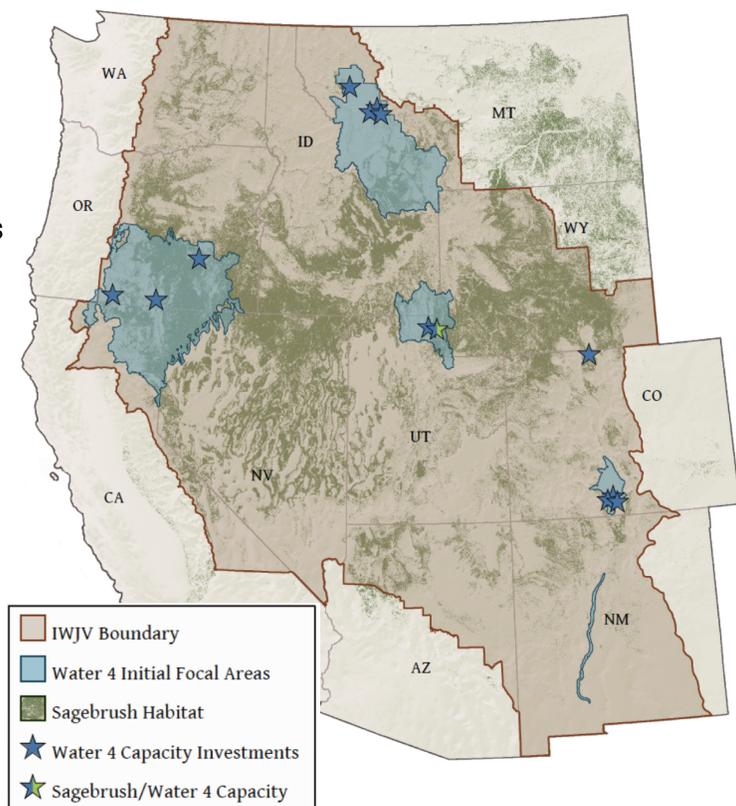
# WATER 4

*Conserving wet meadows and water for: irrigated agriculture, wildlife and fisheries habitat, groundwater recharge, and landscape resiliency in ways that matter to people*

The arid Intermountain West is interspersed with a network of seasonally flooded and permanent wetlands that extend outward from the region’s riparian corridors. These green ribbons of rich biodiversity, water, and food resources drew indigenous people, wildlife, and migratory birds for millennia before land settlement brought farmers and ranchers who were attracted by the reliable water for livestock and irrigation. Ultimately, this pattern concentrated private land ownership in water-rich valleys while the surrounding sea of sagebrush and forests—70 percent of the region’s land—became publicly owned.

**Wet meadows on irrigated agricultural lands now comprise 62 percent of the wetland habitat in snowpack-driven systems of the Intermountain West.**

These irrigated lands provide key habitat for migratory birds, sustain floodplain function, recharge aquifers, and support agricultural communities but are threatened by rural subdivision, competing water demands, and the impacts of climate change.



- ## Water 4 Toolbox
- **Modernization of Flood Irrigation Infrastructure**
  - **Conservation Easements**
  - **Low-Tech Riparian Restoration**
  - **Wet Meadow Restoration**
  - **Reconnecting Rivers to Floodplains**

The Intermountain West Joint Venture (IWJV) established Water 4 to conserve working wet meadows and water in ways that matter to people. The IWJV has developed spatial planning tools that track wetland dynamics and surface water trends—i.e. wetland habitat in space and time—by month, over 35+ years, across the 11 states of the Intermountain West. This powerful science enables strategic implementation of partner-driven tools like conservation easements, flood irrigation infrastructure modernization, low-tech riparian and wet meadow restoration, and reconnection of rivers to floodplains (see Water 4 Toolbox).



## The Future of Water for People and Wildlife in the Intermountain West



Ranchers and farmers play a vital role in sustaining the wet meadow habitats that support migratory birds on their annual journeys from Canada to Mexico along the Pacific and Central Flyways. Flood irrigation mimics the historic natural snowmelt hydrology by filling the “sponge” of these wet meadows in spring for natural storage and release back into the rivers later in the growing season. Sandhill cranes, northern pintails, cinnamon teal, white-faced ibis, and a host of other species are highly dependent upon these habitats during spring migration, breeding, and fall migration. Likewise, these irrigated wet meadows provide forage that is crucial for ranching operations.

Managed wetlands on federal wildlife refuges and state wildlife areas are the other key piece to this puzzle. These public lands are “anchors” of the migratory network and are particularly important during fall migration when wetland habitat is most limited in the arid Intermountain West. Protecting, enhancing, and sustaining this remaining wetland network—across public-private ownership boundaries—is vital for wildlife and people in the West.

Water 4 focuses on achieving multiple benefits and “win-wins” for wildlife and people beyond silos that often exist in conservation. Water 4 is actively working in intact working landscapes to conserve agricultural lands for migratory birds, native fish, and big migration corridors, often involving **the same land, the same people, and the same water**.

In the future, Water 4 is poised to play a major role in:

- Sequestering carbon to address climate change,
- Strengthening rural economies, and
- Serving as a model for collaborative private lands conservation.

### Partnerships in this Initiative

Water 4 is supported by Oregon NRCS; Montana NRCS; Colorado NRCS; New Mexico NRCS; FWS Interior Region 10 Regional Director, Partners for Fish and Wildlife Program, Science Applications, External Affairs, and Refuges; FWS Interior Region 5/7 Regional Director and Refuges; FWS Interior Region 9 Science Applications, Ecological Services, and Refuges; Mule Deer Foundation; Utah Division of Wildlife Resources; and Idaho Department of Fish and Game.

The IWJV continues to seek partner contributions for capacity building, communications, and science.

### Water 4 Approach

- **Science to identify the most vital working wetlands.**
- **Capacity to identify the conservation bottlenecks and work through the existing partnerships to increase the pace of conservation, which often requires the right people with the right skills in the right place.**
- **Communications to tell the story of the role that flood irrigation plays in maintaining historic wetlands, that are now sustained as part of the agricultural network.**

*Revised January 2021*

Learn more at  
[iwjv.org/water](http://iwjv.org/water)

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