#### VIRGINIA WORKING LANDSCAPES

Annual Report 2020



Firginia Working Landscapes (VWL), a program of the Smithsonian Conservation Biology Institute (SCBI) in Front Royal, Virginia, promotes the conservation of native biodiversity and sustainable land use through research, education, and community engagement.



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#### 2020 VWL TEAM

#### **STAFF**



Amy Johnson
Program Director



Charlotte Lorick
Program Coordinator



Joe Guthrie
Survey Coordinator

#### **RESEARCH FELLOWS**

Jordan Coscia Rachael Green

#### **INTERNS**

Maggie Deely

Bernadette Rigley

Erin Saylor

#### STEERING COMMITTEE

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# 

# MESSAGE FROM THE PROGRAM DIRECTOR

very year, as I work with my team to compile our annual report, I always enjoy the opportunity to reflect on how much we've learned and grown. This report may look just like any other year, but the learning and growing we experienced in 2020 was unlike anything I ever expected.

On March 12th, 2020, the eve of our first volunteer training for the season, the world began to shut down. Covid-19 had spread at an alarming rate, so we made the decision to cancel the training and wait for further direction from the Smithsonian.

We had no idea what was coming.

Over the next several months, we saw friends and colleagues lose funding, lose jobs, and lose loved ones. I found myself trying to grasp how to move forward with program activities when there was so much devastation going on in the world around us.

Yet as the pandemic continued to restrict many of us to our homes, we also saw more people reconnecting with nature as a way to cope. This solidified what we already knew – that our connection to nature is so much more profound than the ecosystem services it provides us on a daily basis. It feeds our spirits, supports our well-being, and connects us to each other, even when we feel worlds apart.

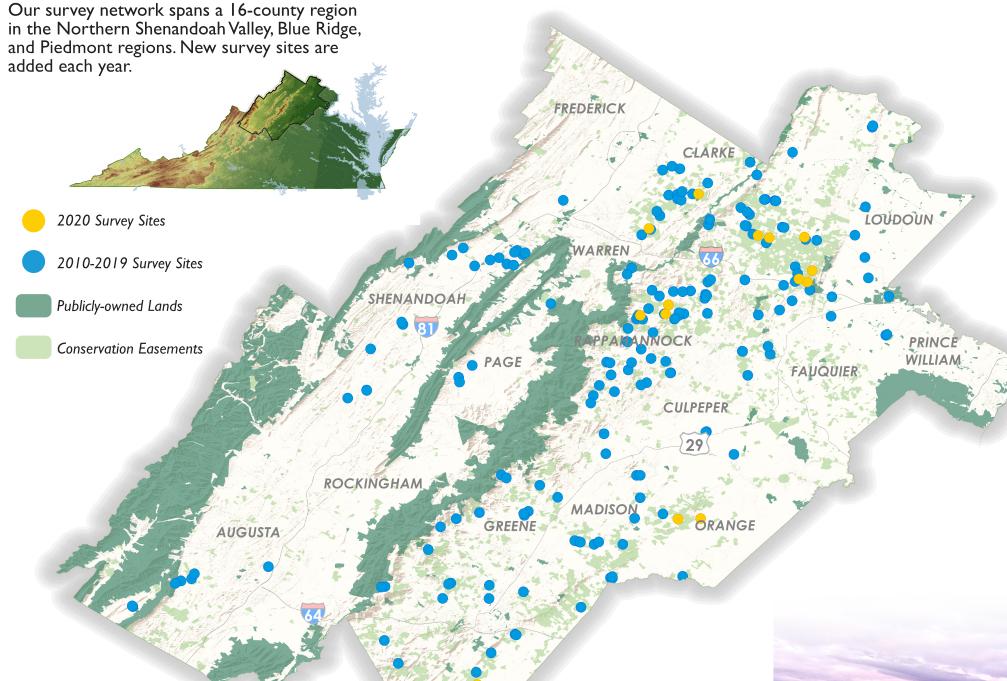
Now, more than ever, we need to prioritize building the necessary knowledge to support the biodiversity that keeps us and our landscapes resilient and healthy, now and for years to come. This ideal is the essence of VWL and is what motivated this incredible team through one of our most challenging years yet. And all along the way, our supporters kept us elevated by believing in our ability to adapt and prosper.

Although the future is still uncertain in some ways, we know that with our community at our side, we will persevere and work together to preserve these incredible landscapes that surround us and support our livelihoods. I look forward to everything that 2021 has in store and hope it brings us all together again.

Here's to a safe and healthy 2021!

Amy Johnson, PhD

#### **SURVEY NETWORK**



ALBEMARLE

# NEW PROPERTY HIGHLIGHT

#### Chancellors Rock Farm

Rappahannock County

Chancellors Rock Farm is on the edge of the Rappahannock River in the heart of the beautiful Virginia Piedmont, 75 minutes outside of DC. After years of neglect, the farm was purchased in 2018 by Kathryn and Tony Everett with the goal of supporting native biodiversity while making Chancellors Rock an demonstration farm for environmentally responsible farming and horticultural practices. Using sustainable grazing pasture management, they are able to reduce the acreage needed for hay production and can delay mowing in a portion of the fields until after peak breeding season to support grassland-dependent birds, such as the eastern meadowlark. Additionally, the farm has acres of natural meadows dedicated to providing food and cover for pollinators and wildlife.

In partnership with Virginia Working Landscapes, they are studying and documenting how those practices can support the local wildlife of the Virginia Piedmont. They hope the farm can serve as a beautiful, unique environment where people can visit, learn from, and appreciate the benefits of sustainable agriculture and living harmoniously with the land.

2010 - 2020 VWL Survey Network Acreage

12,505 ACRES PUBLIC LAND 77,253
ACRES PRIVATE LAND



# ACTIVE RESEARCH PROJECTS CONSERVATION Left: Savannah sparrow (Passerculus sandwichensis), one of several threatened grassland-dependent birds native to Virginia, perches on a fencepost at Oxbow Farm in Warren County, VA. Photo by Bernadette Rigley SCIENCE Right: Gray goldenrod (Solidago nemoralis), little bluestem (Schizachyrium scoparium), and beaked panic grass (Coleataenia anceps), growing naturally in a meadow at Blackrock Farm in Rappahannock County, VA. Photo by Charlotte Lorick

# **VWL PUBLICATION** HIGHLIGHT

**Management Regime and Field Age Affect** Species Richness and Cover of Native Forbs and Exotic Species in Virginia **Grasslands**, published in Ecological Restoration, analyzes nearly a decade of VWL data to describe impacts of native meadow establishment and management on native and exotic species richness in post-agricultural fields. The paper, authored by members of the VWL team and colleagues at the Smithsonian Conservation Biology Institute, demonstrates the importance of working together with landowners and citizen scientists to improve our understanding of grassland ecosystems on private lands. Thank you to all the VWL landowners, citizen scientists, and interns who contributed to this work!



# Grazing for the Birds

n collaboration with the American Farmland Trust (AFT), VWL piloted a new study in 2020 to explore the effects of regenerative grazing and haying practices on the reproductive success of grassland birds. Working landscapes are valuable habitat for grassland birds but they have deteriorated in their ability to support healthy populations due to current agricultural practices, particularly frequent and early hay harvesting and overgrazing.

Grassland birds are among the most imperiled group of birds. In just the last 50 years, grassland bird populations in North America have declined by 53%. Furthermore, grassland-obligate species, such as Virginia's iconic eastern meadowlark (Sturnella magna), reside almost entirely on private lands, making private land conservation a critical component to the recovery of grassland birds.

However, financial pressures have often curtailed the adoption of bird-friendly management recommendations, such as delayed haying, by farmers on private working lands. Regenerative grazing is an emerging approach that incorporates land management practices that not only benefit agricultural ecosystems but have shown to increase efficiency and profitability.

Although science has demonstrated associations with increased bird abundance, there is a significant gap in research that investigates whether these practices contribute to population sinks.

IMPACT | In the pilot year of this study, our bird team monitored more than 100 grassland bird territories. These data provided valuable insight into the regional ecology of breeding birds and were used to refine our experimental design for 2021.

The overall goal of this study is to identify grazing and haying strategies that promote the recovery of grassland birds while still meeting the needs of producers. Findings of this study will be shared with community members and land managers to promote science-based bird conservation on working lands. This data will also support the creation of birdfriendly beef certification standards and encourage a market-based approach to conservation on private working lands.

Funding for this project has been provided by The BAND Foundation.

Learn more about the project at www.vaworkinglandscapes.org/conservation-science/ projects



#### BENEATH THE GRASSES

Many grassland birds nest directly on the ground, concealing their eggs beneath a blanket of grass and forbs. This cryptic nesting behavior makes it difficult for researchers to monitor the reproductive success of grassland birds. To find nests, our bird team used the aid of thermal imagery which under optimal circumstances can distinguish the heat signature of a nest. With the help of this technology, our team found 65 nests from 5 species: bobolinks, eastern meadowlarks, grasshopper sparrows, savannah sparrows, and red-winged blackbirds. Our team also confirmed two breeding savannah sparrow pairs, a new record for Warren County.



This page (Top to bottom): Intern, Erin Saylor, documenting grassland bird behavior; a bobolink nest hiding in grass and clovers in a hayfield at Oxbow Farm in Warren County, VA. Photos by Amy Johnson & Bernadette Rigley

Opposite page: Cattle at Chancellors Rock Farm greeting the VWL field team during nest-searching surveys. Photo by Amy Johnson



#### **CONSERVATION SCIENCE**

### Project Update: Making of a Meadow – Grassland Restoration Experiment Update

n 2019,VWL began a collaborative grassland restoration study with the Oak Spring Garden Foundation and the Clifton Institute. Experimental fields were identified at each site to represent the traditional fallow agricultural fields that comprise much of the open Virginia countryside. Each site was divided into six subplots, and each subplot was assigned a different combination of establishment and management treatments. The techniques include both conventional herbicide-based approaches and organic methods. Baseline vegetation surveys were completed in these plots in 2019, and the restoration establishment treatments began in April 2020. In the summer of 2020, surveys were conducted to monitor the development of the plant communities and the progression of invasive species. The final stages of establishment and initial management routines will begin in Spring 2021 and will be monitored each year thereafter to document restoration success. Data collection throughout the restoration process is being led by VWL research fellow/VA Tech Ph.D. student, Jordan Coscia, and will be used to help inform restoration guidelines for the establishment and management of native grasslands in Virginia.

Funding for this project has been provided by Oak Spring Garden Foundation. Learn more about the project at www.vaworkinglandscapes.org/conservation-science/projects

#### Project Update: Grassland Biodiversity Surveys

VWL has been conducting grassland biodiversity surveys across a 16-county region since 2010. In light of the Covid-19 pandemic, we reduced our number of survey sites in 2020 to minimize travel throughout our survey region. We also modified our field protocols to follow strict social distancing and safety guidelines and transitioned all citizen science trainings to an online platform. Even at limited capacity, we conducted a total of 262 biodiversity surveys on 14 properties. These surveys help us better understand the factors that affect the region's biodiversity and help inform best land management practices for people and wildlife.

INDIVIDUAL SPECIES COUNTED

**BIODIVERSITY SURVEYS** CONDUCTED

Right: Henslow's sparrow (Centronyx henslowii) spotted by VWL survey team in summer 2020. They are so elusive to snag one. Photo by Ian Topolsk

# A Rare Sighting: The Elusive Henslow's Sparrow



While our biodiversity surveys are meant to capture entire grassland communities, some species observations warrant their own spotlight. In summer 2020, our team observed a pair of Henslow's sparrows (Centronyx henslowii) during a routine site visit. While to some, these may look like just another "little brown job" (a nickname often used to describe inconspicuous sparrows!), these sparrows are listed as critically imperiled in Virginia with less than 5 reported sightings in the state over the last decade. This rare find emphasizes the importance of collaborating with landowners to gain a better understanding of rare species distributions and habitat use throughout the state.

## Understanding the Human Dimensions of Conservation

n 2020,VWL began collaborating with Virginia Tech on a research project that explores conservation through the lens of social science. The project is designed to investigate the question:

How does participation in conservation research programs affect participants' conservation activities on private lands and beyond?

Advised by Dr. Ashley Dayer, a conservation social scientist from Virginia Tech, VWL research fellow Rachael Green developed a series of interviews and surveys to explore this question with private landowners/land managers and citizen scientists that have participated with VWL. These surveys will continue into 2021 and will be analyzed and shared

as part of Rachael's masters research thesis with Virginia Tech.

IMPACT| Results from this research will help inform the work of conservation research programs like VWL and will help elucidate the impacts of these programs on conservation-related activities.

Funding for this project has been provided by the Jacquemin Family Foundation and a Smithsonian Working Lands and Seascapes Amplification and Innovation Award.

Learn more about the project at www.vaworkinglandscapes.org/conservation-science/ projects





#### WHAT IS SOCIAL SCIENCE AND THE STUDY OF HUMAN **DIMENSIONS?**

**Social science** is the study of human society and relationships.

The **human dimensions** of wildlife conservation applies social science to study peoples' relationships with the natural world. From building cities to planting crops, humans continue to drastically change the local environment. By studying the many ways that people interact with the natural world, we can better inform wildlife conservation efforts.



This page: (Top) VWL Survey Coordinator, Joe Guthrie, preparing to take soil samples for a grassland survey. (Bottom) VWL Program Coordinator, Charlotte Lorick, joins landowner Carolyn Smith on a visit to her meadows to assess vegetation composition before a prescribed burn. Photos by Amy Johnson

Opposite page: Beatrice von Gontard, owner of Oxbow Farm in Warren County, VA studying different pasture grasses. Photo by Amy Johnson



# EDUCATION & ENGAGEMENT

Left: Lion's foot (Nabalus serpentarius) blooming in an old powerline cut along with numerous other native meadow plants in Fauquier County, VA.

Right: Narrow-leaved blue-eyed-grass (Sisyrinchium angustifolium), a member of the Iris family, peaking out of leaves in a backyard in Rappahannock County, VA.

Photos by Charlotte Lorick

# **EDUCATION HIGHLIGHT: NATIVE PLANT** WATCH

With support from Smithsonian's Earth Optimism, VWL launched a new project called Native Plant Watch (NPW). This project was developed to engage our community in conversation and information-sharing on native plants.

NPW is designed to be a long-term project to not only provide educational tools but to also encourage and inspire the public to connect with plants in their backyards and protect and restore native plants in our landscapes, thereby supporting more resilient ecosystems and declining species.

We created a web portal with resources on native plant identification and restoration. There the public can find weekly plant highlights and educational tools to inspire the community to support our native plant communities now and into the future.

To learn more about the project, visit: www.vaworkinglandscapes.org/native-plant-watch









# Training the Next Generation of Conservationists

WL has a range of mentorship programs including research fellowships, internships, and undergraduate experiences through the Smithsonian-Mason School of Conservation. These programs provide budding conservationists with experience in ecological research, science communication, and community outreach – all necessary skills for developing successful careers in conservation. Meet the 2020 team:

**Erin Saylor**, Intern | Erin focused on grassland bird research projects including nesting surveys, behavioral surveys, and vegetation sampling. She will begin a Master's program at Mississippi State University in 2021.

**Rachael Green**, Research Fellow | Rachael is a Master's student in the Department of Fish and Wildlife Conservation at Virginia Tech. She is currently interviewing and surveying VWL participants in order to learn more about their thoughts and experiences related to VWL and conservation activities.

**Jordan Coscia**, Research Fellow | Jordan collected and managed plant data from our experimental grassland restoration project. She began a Ph.D. program at Virginia Tech in 2020. She will continue to work with VWL to examine the effects of restoration methods on plant communities.

Intern, Bernadette Rigley, Joined by the cattle on nest-searching surveys and Chancelley Rich Fact Form in Repponance County, Vi. Prioto by Any Johnson.

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**Bernadette Rigley**, *Intern* | Bernadette led research efforts for the bird-friendly beef project which included grassland bird surveys, data analysis, and science communication. She will begin a Ph.D. program at George Mason University in 2021, and will continue to work with VWL as a research fellow to study regional grassland bird ecology.

**Maggie Deely**, Intern | Maggie focused on science communication and developing outreach and education resources for various VWL projects, including Native Plant Watch.









INTERNS, STUDENTS & RESEARCH FELLOWS



# Citizen Science: The Heart of Virginia Working Landscapes

WL's work is designed to harness the expertise, skills, and talents of a diverse network of collaborators including landowners, partnering scientists, land management professionals, and volunteer citizen scientists. Above all, it is the citizen scientists who power the VWL program and form the heart of our research and community engagement activities each year. Beyond the programmatic benefits citizen science brings to VWL, our volunteers connect our staff and the larger Smithsonian Institution to our community and keep us motivated with inspiring stories from the field. Whether our volunteers are 10-year veterans who bring experience and leadership to the program, or newly registered volunteers joining us to explore new places and meet like-minded friends, they bring a level of charisma that generates unparalleled excitement with each new season.

Though our 2020 season got off to a late start due to the Covid-19 pandemic, our team of returning citizen scientists hit the ground running as soon as we were able to get back in the field. They adapted to a number of new COVID safety protocols with ease, and their diligence and dedication ensured a safe and successful field season.

While we celebrate the success of another survey season – and perhaps our most challenging one yet – we also mourn the loss of one of VWL's most longterm volunteers.

REMEMBERING CATHY MAYES | In 2020, our community lost a dear friend, a devoted citizen scientist, and lifelong conservationist - Catherine D. Mayes. Cathy spent the last decade dedicating her time, knowledge, and enthusiasm to VWL as a citizen scientist conducting bird, pollinator, and plant surveys in grasslands throughout Virginia. As one of VWL's first volunteers, she motivated dozens of fellow citizen scientists, landowners, VWL interns, and staff through her commitment to conservation, leaving behind a legacy that will undoubtedly inspire us all for years to come.

Cathy was integral to the establishment of a "Mother Tree" American Chestnut Orchard at the Smithsonian Conservation Biology Institute. As such, SCBI and the American Chestnut Foundation have honored Cathy by naming the chestnut grove "The Catherine D. Mayes Chestnut Orchard". We are forever grateful to Cathy for her unwavering support of VWL and will remember her fondly alongside all of those she influenced throughout her life.







**CITIZEN SCIENTIST VOLUNTEERS** 

VOLUNTEER **HOURS IN** 2020

15484 **HOURS SINCE 2010** 



Top: VWL citizen scientists (Cathy Mayes in the middle holding a clipboard) in 2017 during a training session for the vegetation surveys at SCBI. Photo by Olivia Cosby

Middle: Long-time VWL citizen scientist, Paul Guay, identifying plants in a restored native meadow at Oxbow Farm in Warren County, VA. Photo

Bottom: SCBI staff Scotty Gerbich volunteering to conduct bird surveys for the Bobwhite Quail Habitat Assessment project at Stonebridge Farm in Clarke County, VA. Photo by Charlotte Lorick

# Workshops and Event Highlights

CBI and VWL prioritize education and training at all levels, and we aim to share scientific research that helps inform management practices for biodiversity conservation. Under normal circumstances, we regularly host expert-led workshops, trainings, and lectures that are open to the public at our Front Royal campus.

2020 brought many challenges, one of which was transitioning events and trainings to a virtual format. While we missed opportunities to connect with our community in person, the virtual events that VWL participated in enabled us to expand our reach across the globe. Over 55,000 people participated remotely in more than 20 events. The following page highlights some of our 2020 workshops and events.

#### TED Talk: Bringing Birds Back

July | VWL was featured at a TEDx event that was organized to highlight people and programs that are "Leading Change". In her first TEDx talk, VWL Program Director Dr. Amy Johnson highlighted how VWL landowners and scientists are working together to conserve grassland birds and described how communities can get involved to help bring birds back. The talk, now featured on TED.com, can be viewed online anytime at: www.vaworkinglandscapes.org/newsletter/bringing-birds-back



#### Film Screening: Beaver Believers

January | VWL and The Piedmont Environmental Council (PEC) hosted a film screening of "Beaver Believers" followed by an expert discussion panel at The Little Washington Theatre in Washington, VA. The evening was dedicated to highlighting the important roles that beavers play in providing ecosystem services and discussing ways to mitigate conflicts between landowners and beavers. In addition to VWL and PEC, special guests from The Clifton Institute and Beaver Deceivers LLC joined the conversation, engaging the audience in a vibrant post-film discussion. VWL would like to thank Nancy and Dick Raines for providing an inviting space to host the evening's events.



#### Presentation: Nature's Bird **Feeders**

**February** | In a presentation created for the Monticello Bird Club, VWL Program Coordinator Charlotte Lorick dove deep into the fascinating relationships between native plants and birds, highlighting ways to strategically utilize plants to increase resources for birds year-round.

#### Virtual Global Summit: Earth Optimism

April | VWL Program Director Dr. Amy Johnson co-hosted the global Earth Optimism Virtual Summit – a Smithsonian-led conference that featured conservation success stories from around the world, reaching over 55,000 devices in over 170 countries.



### Conferences: Sharing our Science

VWL staff and students presented at several national conferences in 2020, including the North American Congress for Conservation Biology and the North American Ornithological Conference. Featured research included human dimensions, orchids, and grassland birds. In addition, VWL co-organized and led a session at NACCB for conservation practitioners on how to successfully conduct conservation research in collaboration with private landowners.

## Webinars: Connecting with New Audiences

The transition to virtual meetings in 2020 provided new opportunities for VWL staff to collaborate with new partners on joint informational webinars, enhancing our reach to new audiences from around the world and building our network of collaborators. Featured webinars included a "Women for the Land Learning Circle" with American Farmland Trust, a "Land is Forever" webinar with the European Landowners Organization and The Nature Conservancy, and a "Meet the Authors" panel with American Bird Conservancy.

PEOPLE REACHED AT VIRTUAL EVENTS

**EVENTS** 

**ARTICLES & NEWS SEGMENTS** 

#### 2020 Citizen Scientists

Sally Anderson

Ashley Landes **Bonnie Beers** Patty Lane Monty Loving **Bob Butterworth** 

Greg Chapman

Michelle McKenzie Hillary Davidson Janet Paisley Art Drauglis Phyllis Partain

Eddie Fletcher Darnice Pettigrew Paul Guay Dana Squire

Bert Harris Phil Kenny Kate Heneberry Sara Kenny

Jennifer Holder Andy Josselyn

#### 2020 Survey Properties

Bean Hollow Grassfed

Bellair Farm Berrybrook Springs

Blackrock Farm

Burwell-Van Lennep

Foundation

Chancellors Rock Farm

Kinloch Farm

McConnell Property

Oak Grove Farm

Oak Spring Garden

Foundation

Selby Farm

Oxbow Farm

Roland Farm

The Hill School

#### 2020 Research Collaborators

American Farmland Trust

Center for Species Survival, SCBI

Changing Landscapes Initiative, SCBI

Conservation Ecology Center, SCBI

The Clifton Institute

Manassas National Battlefield Park

Movement of Life Initiative, SCBI

National Park Service

Oak Spring Garden Foundation

Smithsonian Environmental Research Center

Smithsonian-Mason School of Conservation

Smithsonian Working Lands & Seascapes

Virginia Department of Wildlife Resources

Virginia Master Naturalists

Virginia Tech

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Tom Wood

Cheri & Martin Woodard

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ACKNOWLEDGMENTS

A male ruby-throated hummingbird (Archilochus colubris), enjoying nectar from scarlet beebalm (Monarda didyma) at a property in Rappahannock County, VA. Photo by Charlotte Lorick

## SOURCES OF FUNDING **OPERATING BUDGET** undraisers 8% \$293,292 12% 57% 23% Grants & Awards **Foundations**

PROGRAM EXPENDITURES

19% Administrative & Development

> 36% Community Engagement

45%

Research

FINANCIAL REPORT

# SUPPORT **VWL**

Together we can conserve Virginia's diverse wildlife and rich landscapes.

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100% OF VWL FUNDS COME FROM GRANTS, DONATIONS, & **COMMUNITY SUPPORT** 

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Front & back covers | A gray hairstreak butterfly (Strymon melinus) on tall goldenrod flowers (Solidago altissima) in Rappahannock County, VA. Photo by Charlotte Lorick



#### VIRGINIA WORKING LANDSCAPES

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