

# A NM Beekeeper's WSARE Experience: From

## Idea to Courage to Reflection

*A Queen for All Seasons: Trans-Regional Survivor Stock & Longevity-based Breeding Program-A Reflection of Living Laboratory Case Studies (2000-2017)*

~From the Shores of Lakes Superior to the Banks of the Rio Grande~  
*Zia Queenbees Farm & Field Institute*

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### Objectives

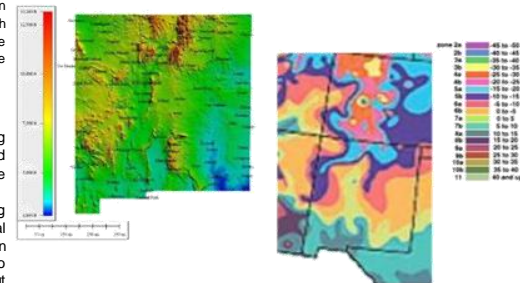
The prerequisites of migratory operations and the notable fact that queen producers struggle to meet the insatiable demand for bees and queens (both for professional and novice settings) that not only survive but are productive while retaining quality characteristics in a variety of climates may seem like an impossible task. So we must ask,

"Is it possible to find *A Queen for All Seasons*; i.e. queens that can adapt to varying climates and challenges?"

The bee industry has long relied on stock lines from a dwindling genetic pool<sup>3</sup>; and in some cases, stock propagated in compromised settings or in overly stressful circumstances. And while selective pressures for testing quality stock lines is needed to ensure "conditioning" of the bees and to activate genetic stories for coping and adapting, the current onslaught of environmental and social implications does make the task of finding bees and queens that can endure daunting. ZQB has been on a mission since its inception to define survivor stock as not only having site specific implications; but also the potential to transcend regional boundaries by testing and exchanging stock in multiple regions of the U.S.<sup>4</sup>



Zia Queenbees Farm & Field Institute, nestled at the kiss of the forests, where Santa Fe, Carson and Pecos National Forests converge, on The High Road to Taos- has dedicated its efforts to finding adaptable stock lines and cross-stocks that are able to perform well in multiple conditions, topographies, and under varied management styles by collaborating with beekeepers in MI, FL, CO, VT, OR, PA, NC, CA & HI. Despite the fragility of being a first generation, landless farming enterprise, ZQB has helped to nurture strain diversification of the genetic pool; and to support honeybees chosen by beekeepers for beekeepers through a *Father Time Tested-Mother Nature Approved* paradigm.<sup>5</sup>



### Methods and Materials

- 2000-2009: M. Spitzig establishes Superior Honey Farms in Marquette, MI. Original stock lines included: NW Carrionol (CA, FL); SMR/VSH Italian (CA, LA, FL); Cordovan (CA-FL); crosses selected for overwintering and productivity under a no-treatment approach.
- 2005: M. Kirby & M. Spitzig team to establish Zia Queenbees in northern NM. Incorporation of additional Varroa Sensitive Hygiene Italian; New World Carrionol; Cordovan Italian
- 2006: ZQB begins sharing queens in NM & CO.
- 2005-2008: Sustainable Agriculture Research (WSARE) grant<sup>6</sup> to collect and propagate cross stocks with 5 professional NM beekeepers: Buckin' Bee (Santa Fe); ABee Honey Co. (Edgewood); Taos Valley Honey; Hay's Honey & Apple Farm (Bosque Farms); Garcia's Apiaries (Mesilla Valley-Las Cruces). Production queens made available rationally.<sup>7</sup>
- 2008: Integration of 85% Russian crosses from Vermont: Champlain Valley Queens & Bees- Kirk Webster (Middlebury).
- 2010: Initiation of California "Surf-Ivor Bees" collaboration with central valley & San Francisco area beekeepers: Davis Family Apiaries (Porterville); Marin Beekeepers Association ZQB survivor queens found in CA that were 2, 3, and 4 year olds that endured 7 annual pollination migrations throughout the central valley.<sup>8</sup>
- 2011: Invitation to Scientific Beekeeping- R. Oliver for ZQB farm visit; random mile counts conducted on ZQB breeding stock measuring on average < 0.3%
- 2012: Collaboration with Bonnie Bee & Company (San Rafael, CA) as mentors to encourage Marin Adapted Survivors.
- 2<sup>nd</sup> WSARE grant received to initiate the *Rocky Mountain Survivor Queenbee Cooperative (RMSQB)*<sup>9</sup> educational network and stock exchange program composed of 9 beekeepers from Santa Fe, NM to Fort Collins, CO (spanning 477 miles; 7 counties; 5000-9000'; Santa Fe, Mora, Bueras Vista, Truchas, Llano San Juan, Arroyo Seco, Arroyo Hondo, Walsenburg, Denver, Fort Collins).<sup>10</sup>

### References

1. OLT- term borrowed from the cattle industry which can apply to the breeding assessment of organisms. The worth of a particular stock line; i.e. survivability.
2. Locke, Barbara; Kefuss, John, et al. "Increased Tolerance and Resistance to Virus Infections: A Possible Factor in the Survival of *Varroa destructor*-Resistant Honey Bees (*Apis mellifera*) (2014)
3. Cobey, Sue. "Status of Breeding Practices and Genetic Diversity in Domestic U.S. Honey Bee," chapter in *Honey Bee Colony Health: Challenges and Sustainable Solutions* (2012) ISBN-13: 978-1439879405
4. McNeil, M.E.A., "Survivor Stock: A growing number of small-scale beekeepers are joining forces to select for better bee." *ABJ* (Oct. 2014) vol. 154 (10) 1087-1091
4. McNeil, M.E.A. "Next Up: The Survivors- Part II of II Part." *ABJ* (June 2009); vol. 194 (4) 354-355
5. www.sare.org, Project # FW07-032; [http://mysare.sare.org/sare\\_project/fw07-032/](http://mysare.sare.org/sare_project/fw07-032/)
6. Kirby, Melanie. "A Practical Sustainable Approach- The SW Survivor Queenbee Project: Pro-Active Cross Stock Selection," *ABJ* (March 2008) vol. 148 (93) 233-236
4. Kirby, Melanie. "In Her Majesty's Secret Service," *ABJ* (June 2011) 601-606

### Introduction

Longevity of honey bee queens used in both commercial and professional agricultural endeavors and hobbyist applications has diminished over the past few decades as a result of multiple variables and circumstances. While there has yet to be conclusive evidence of pinpointing one specific cause of such challenges, there do exist multiple stock lines and cross-stocks of diverse lineage that, observably and measurably, are able to endure.

The quest for such endurance in queen honey bees has fascinated producers in various parts of the world. Queen honey bees who have been able to cope with today's deadliest of pests, *Varroa destructor*-vectors of pathogens, are highly sought after by bee producers, diverse demographics of beekeepers, and researchers. As such, there are queen breeders around the globe who have embraced the challenge of trying to find, preserve and breed these quality queen lineages which demonstrate endurance, pest/disease resistance, hygienic behavior, gentleness and productivity.

Zia Queenbees Farm & Field Institute is one such small-scale queen breeding operation. Located in the crenulated topography of northern New Mexico, ZQB utilizes the extreme landscapes of the Land of Enchantment- where the desert and the plains meet the Rocky Mountains- to find, monitor and propagate those bees and queens who have demonstrated their Overall Lifetime Merit<sup>1</sup> (OLT). Established in 2005, Zia Queenbees began as the sister operation to Superior Honey Farms ( est. 2000 in Upper Peninsula Michigan). Both operations focus on selecting for longevity, which is a heritable trait.

Longevity serves as the mbrella trait and is established over time through nature's dynamic interface. Selection of queen mother breeders is based on a two year *thrive and survive*<sup>2</sup> regiment. Those

that demonstrate productivity with the additional characteristics of hygienic behavior, pest/disease resistance, gentleness, and overwintering ability are eligible breeding contenders after successful completion through minimum two winters (18 months) with only natural and naturally derived supplementations (i.e. no commercial milks or therapeutic applications, leaving toxic residues).

Zia Queenbee Co.

POB Truchas, New Mexico 87578



5. [www.sare.org](http://www.sare.org), Project #FW12-096; [http://mysare.sare.org/sare\\_project/fw12-096/](http://mysare.sare.org/sare_project/fw12-096/)
  6. Kirby, Melanie. "The Rocky Mountain Survivor Queenbee Cooperative," *ABJ* (Feb. 2013) 175-177
  7. [www.survivorqueenbees.org](http://www.survivorqueenbees.org)
- 2013: Collaboration with Wings of Nature Bees (Aiden Wing of Los Altos; Bay Peninsula Preserve) for California "Survivor Bees"  
Recipient of New Mexico Department of Agriculture Ag Advance & Product Promotion Grant.
- 2014: Mitotype DNA testing of ZOB breeding and support hives by Dr. Juliana Rangel (Texas A&M), Old World Strains found in isolated New Mexico canyon and ZOB mating apiary.<sup>11</sup>  
Survivor stock virgin queen exchanges with Pennsylvania queen breeders: Sweet Meadow Apiaries- S. Repasky; V. Aloyo – EAS Master Beekeepers
- 2015-2016: Collaborations with Bay Peninsula Preserve & northern CA breeders: Wings of Nature Bees (Los Altos); Can-Am Apiaries (Capay); Heikam's Honeybees (Orland) for stock exchanges; sharing of mating apiaries for developing new cross stocks; and integration of longevity –based breeding stock.
- 2017 into the future: Continued collaborations with queen producers and breeders in California, Colorado ( Dr. Jose Villa), and Hawaii (Big Island Queens); Florida (Wonderful Bees) for further case study analysis, stock testing/selection, propagation and exchanges.
- ZOB Breeder stock made available for consilience investigations, breeders, queen producers, community oriented educational outreach, domestic and international research.

## A Little Background: **Melanie M. Kirby**

Professional Apiculturist, Queen Breeder, Consilience Researcher,  
Writer, International Consultant, Outreach Specialist



Tortugas Pueblo  
Tribal Member  
Las Cruces, New Mexico

1993-1997 St. John's College- Santa Fe, NM

1997-1999 United States Peace Corps  
Paraguay, South America

2003- Beekeeping Extensionist Trainer for  
Center for Human Potential

Farmer To Farmer- USAID  
Jamaica, Nicaragua, Morocco

### Commercial Beekeeping Experience

Hawaiian Queen    Kona Queen    Big Island Queen    - Hawaii  
Honey Land Farms    - FL-WI

Superior Honey Farms Upper Peninsula, Michigan

Zia Queenbees Farm & Field Institute - New Mexico

**Who?**  
**What?**  
**Where?**



**Nestled in the « kiss » of the forests: Carson, Pecos & Santa Fe National Forests converge on « The High Road to Taos » in the picturesque village of Truchas @ 8300'**



# TIME & SEASONS

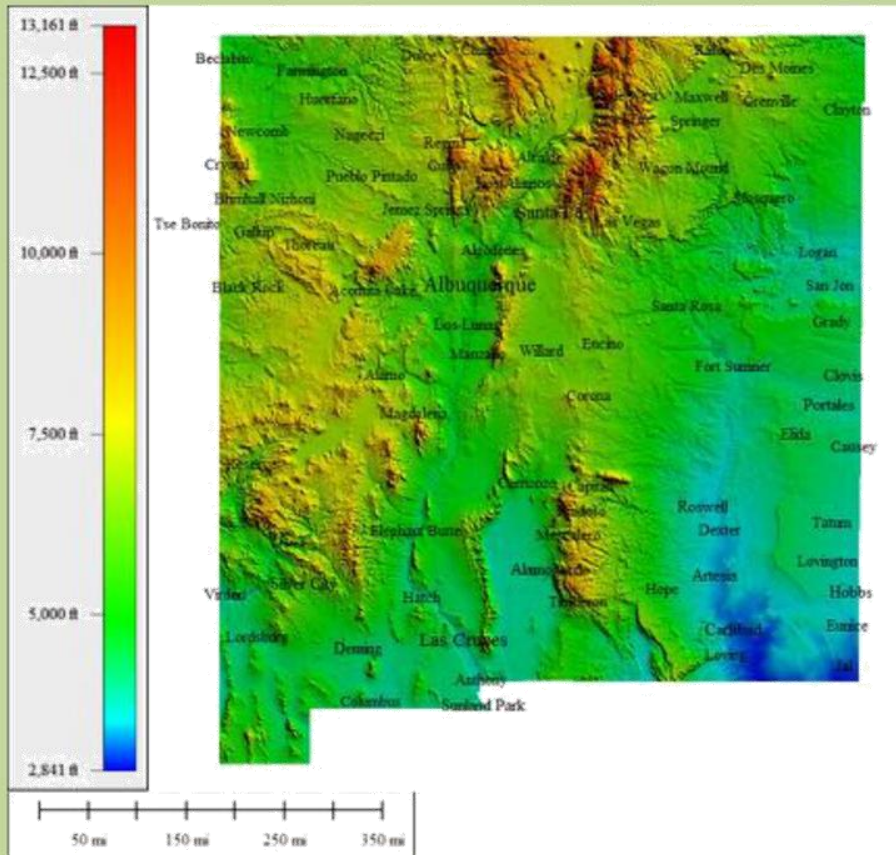


# ENVIRONMENT & LOCATION

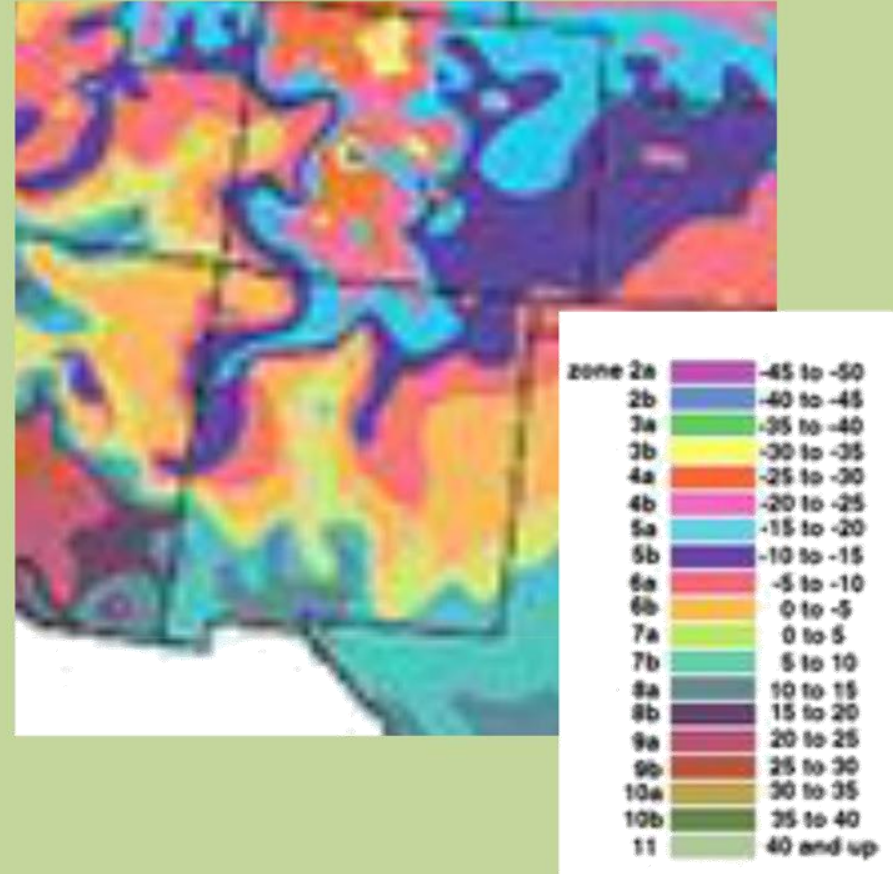
Where is the Land of Enchantment?



# Microclimates = Diversity + Adversity



Elevational Changes



Topographical changes



# LAND OF ENCHANTMENT: From Desert to Tundra



Organ Mountains Southern NM  
Chihuahuan Desert- Mesilla Valley

4000'



Northern Rio Grande Espanola  
Valley

5500'



Chama river- Georgia O'Keefe country  
7000'

Rio Arriba/Taos/Mora/Santa Fe County Forests  
8000'

# PRIMAVER A



**SPRING**

**SUMMER**



**VERANO**

OTOÑO



AUTUMN

WINTER



INVIERNO

# IT TAKES A COMMUNITY TO RAISE BEES





# SHARING EDUCATION

FARMERS+RESEARCHERS+INSTITUTIONS

=

NETWORK In ACTION



# It Takes a Community

## The Importance of Communication



***PRO -ACTIVE STOCK MANAGEMENT***

***Honeybees chosen by Beekeepers for Beekeepers***

# 2007: Establishing Survivor Genetic Pool

## Honeybees chosen by Beekeepers for Beekeepers



TJ Carr with his rooftop top bar hives – Albuquerque (2010)



Steve Wall of Buckin' Bee Santa Fe (2009)



Jason Goodhue and his (2007) daughter Angelina

[www.sare.org](http://www.sare.org)  
Project # FW07-032



Les Crowder of Top Bar fame: Rio Lucio/Socorro (2008)

**of Taos Valley Honey**

**Betty Sperlich- Santa Fe (2010)**