

**BIOGRAPHICAL SKETCH**

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NAME: James R. Carey

eRA COMMONS USER NAME (credential, e.g., agency login): FZCAREY

POSITION TITLE: Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE	Completion	FIELD OF STUDY
Iowa State University	B.S.	March, 1973	Animal Ecology
Iowa State University	M.S.	June, 1975	Entomology
University of California, Berkeley	PhD	June 1980	Entomology
Harvard University	--	1978-79	Visiting PhD student (population geneticists Richard Lewontin & Richard Levin laboratories)

**A. Personal Statement**

I am an entomologist with complementary training in insect biology (both field and laboratory) and demography, the former of which I received when matriculating for my PhD and the latter of which I received by engaging with demographers at Berkeley (e.g., auditing Dr. Kenneth Wachter's course) and becoming a member/senior scholar of the Center for the Economics and Demography of Aging. I am a long-standing member of both the Population Association of America (PAA) and the Gerontological Society of America (GSA). I directed a \$10 million, multi-university P01 for nearly 10 years (2003-2013), the theme of which was "aging in the wild". I was the discoverer of what has become to be known as "Carey's Equality" while directing this P01 and my individual project within it.

My research interests involve the biology and demography (biodemography) of aging and life span, topics on which I have published 3 books (a fourth in production), senior-edited 5 proceedings, and published over 250 refereed papers. I am co-author (with Deborah Roach) of the invited chapter for the 2014 edition of the Annual Review of Ecology, Evolution and Systematics titled "Population biology of aging" and the lead author of the 11-chapter book "Biodemography: Introduction to concepts and methods" by J. R. Carey and D. A. Roach (2020, Princeton University Press) that be the first book published in this blossoming new field.

My primary research focus from the early 1990s through the middle of last decade was on questions concerning slowing of mortality, health demography, electronic behavioral monitoring system, sex mortality differentials, prolongevity effects of selected compounds, lifespan evolution, and effects on longevity of ovarian transplantation. However, in the last decade my focus has shifted to studies of aging in the wild. Using original modeling approaches, my colleagues and I innovated the use of demographic and behavioral data gathered in the laboratory from wild, live-captured insects in the field to examine aging dynamics in wild populations (i.e. captive cohort methodology). Although the main empirical component has involved field studies of the medfly in Greece and butterflies in Uganda, in the last year my laboratory has funded studies on aging in wild mosquitoes (Volos, Greece) and wild *Drosophila* (Davis, CA). In my career I have published papers related to the biodemography of aging in field and laboratory studies for tephritid fruit flies, the honeybee, the yellow fever mosquito, butterflies, spider mites, *C. elegans*, laboratory mice, mangabeys (Uganda), and humans.

## B. Positions and Honors

List in chronological order previous positions, concluding with the present position. List any honors. Include present membership on any Federal Government public advisory committee.

1992-present	Professor	University of California, Davis
1996-present	Senior Scholar	Center for Economics and Demography of Aging (CEDA), UC Berkeley
1997-99	Vice Chairman	UC Davis, Department of Entomology
1987-92	Associate Professor	University of California, Davis
1980-87	Assistant Professor	University of California, Davis
1973-75	Graduate Research Assistant	Iowa State University, Ames
1975-80	Graduate Research Assistant	University of California, Berkeley
2006	Smithgroup Distinguished Lecturer	Beckman Center, University of Illinois
2003-13	Program Director (NIH/NIA P01)	Biodemographic determinants of lifespan
2008	Chair, University Com. Research Policy	UC Systemwide (appointed 2008-09)
2008	UC Academic Council	UC Systemwide (appointed 2008-09)
2000	Fellow	AAAS
2003	Fellow	Gerontological Society of America
2010	Fellow	California Academy of Science
2011	Fellow	Entomological Society of America
2013	Distinguished Teaching Award	UC Davis Academic Senate
2015; 2016	Distinguished Teaching Award	Entomol. Soc. Amer (Branch & National)
2017	Semi Finalist	Cherry Great Teacher Competition (Baylor Univ)
2014	Distinguished Professor	UC Davis above scale rank
2016	Lead plenary speaker	Int. Congress of Entomology (Orlando)
2017	Plenary speaker	Evolutionary Demography Society (Miami)

## C. Contribution to Science

### 1. Biodemography.

Having finished a demography-based PhD dissertation in insect ecology, taught a graduate course in mathematical insect demography, networked with demographers at the UC Berkeley Department of Demography, joined the Population Society of America, and published a book on applied biological demography, by the early 1990s I had undergone a professional transformation from specializing in insect ecology to biological demography, now referred to as biodemography. I have been involved in and helped shape this field since it began to emerge in the mid-1990s as a sub-discipline of mainstream (human) demography. I continue to be active in shaping the field including membership on the governing board of the newly-founded Evolutionary Demography Society and frequent invitations to present talks at international meetings. For example, I have been invited to present the lead-off plenary talk (**Title: *Insect demography: A 21<sup>st</sup> century tour***) at the 2016 International Entomological Society meetings in Orlando.

- a) Carey, J. R., and D. Roach. 2020 Biodemography: An Introduction to Concepts and Methods. Princeton University Press, Princeton (forthcoming).
- b) Carey, J. R., and J. W. Vaupel. 2019. Biodemography. Page (in press) in D. Poston and M. Micklin, editors. Handbook of Population. 2<sup>nd</sup> Ed. Kluwer Academic/Plenum Publishers, New York
- c) Carey, J. R. (2003) Longevity. The Biology and Demography of Life Span. Princeton: Princeton University Press.
- d) Carey, J. R. (1993) Applied Demography for Biologists with special emphasis on insects. New York: Oxford University Press.

## 2. Aging in wild.

Because of the technical and logistical limitations of estimating insect age and survival in the wild, my colleagues and I innovated a new concept for estimating age/frailty structure in wild insect populations. Referred to as the captive cohort method, the underlying concept is that a population's age structure and its death distribution are inextricably and uniquely interconnected. Therefore with certain simplifying assumptions the former can be estimated from the latter using demographic models and reference life tables. This new concept is emerging as one of the original new approaches to study aging in wild insect populations.

- a. Carey, J. R., S. Silverman, and A. S. R. S. Rao. 2019. The life table population identity: Discovery, formulations, proofs, extensions and applications. In A. S. R. S. Rao, editor. *Handbook of Statistics: Integrated population biology and modeling* Vol. 39. Elsevier LTC
- b. Papadopoulos, N., J. R. Carey, C. Ioannou, H. Ji, H.-G. Müller, J.-L. Wang, S. Luckhart, and E. Lewis. 2016. Seasonality of post-capture longevity in a medically-important mosquito (*Culex pipiens*). *Frontiers in Ecology and Evolution* 4:63 doi: 10.3389/fevo.20016.00063.
- c. Roach, D. A. and J. R. Carey. 2014. Population biology of aging in the wild. *Annual Review of Ecology, Evolution and Systematics* 45:421-443.
- d. Rao, A. R. R. S., and J. R. Carey. 2014. Generalization of Carey's equality and a theorem on stationary population, *Journal of Mathematical Biology*, 71: 583-94.

## 3. Mortality dynamics/slowing.

In the early 1990s research that I the team that conceived, designed, implemented and published the answer to the question that has a bearing on whether there are specific limits to lifespans across species: “*What is the trajectory of mortality at the most extreme ages?*” Whereas the prevailing wisdom at the time was that mortality approached unity at the most extreme ages, my colleagues and I demonstrated using the largest life table for any non-human species (1.2 million fruit flies) that the trajectory slowed. The observation of “slowing” a subset of a broader research sub-theme involved with mortality dynamics involving interpretation and comparison of patterns of age-specific mortality such dietary effects, gender and inter- and intra-species differences and cost of reproduction.

- a. Carey, J. R., P. Liedo, D. Orozco, and J. W. Vaupel. 1992. Slowing of mortality rates at older ages in large medfly cohorts. *Science* 258:457-461.
- b. Carey, J. R., P. Liedo, D. Orozco, M. Tatar, and J. W. Vaupel. 1995. A male-female longevity paradox in medfly cohorts. *Journal of Animal Ecology* 64:107-116.
- c. Vaupel, J. W., J. R. Carey, et al. 1998. Biodemographic trajectories of longevity. *Science* 280:855-860.
- d. Carey, J. R., P. Liedo, H.-G. Müller, J.-L. Wang, and J. W. Vaupel. 1998. Dual modes of aging in Mediterranean fruit fly females. *Science* 281:996-998.

## 4. Lifespan.

Lifespan is a fascinating topic that, remarkably had received limited attention in the population biology and demography literature, and on which there was remarkably little actual data that it been brought together in one place. Consequently my former postdoc and I brought together all of the data in the literature that we could find on lifespan vertebrates and published the first book resource book on lifespans in mammals, birds, reptiles, amphibians, and fish.

- a. Carey, J. R., Tuljapurkar S, editors (2003) Life Span: Evolutionary, Ecological and Demographic Perspectives. Supplement to *Population and Development Review* 29, New York: Population Council.. 1-320 p.
- b. Carey, J. R. 2003. Life span: A conceptual overview. Pages 1-18 in J. R. Carey and S. Tuljapurkar, editors. Life Span: Evolutionary, Ecological, and Demographic Perspectives. Supplement to *Population and Development Review* 29, New York: Population Council.
- c. Carey, J. R. and D. S. Judge. 2000. Longevity Records: Life Spans of Mammals, Birds, Reptiles, Amphibians and Fishes. Odense University Press, Odense, Denmark.
- d. Carey, J. R. and D. S. Judge. 2001. Life span extension in humans is self-reinforcing: a general theory of longevity. *Population and Development Review* 27:411-436.

URL for full CV and publications:

<http://entomology.ucdavis.edu/files/196812.pdf>

## D. Research Support

### Current research funding

Supported with arrangement UCD CAES Dean's office for Summer Session teaching

CEDA/NIA grant 5/31/18-6/1/19 "Longevity and lifespan 1750-2018: Historical analysis of large-scale family tree databases for England"; \$29,076

### Pending

CEDA/NIA grant "Recording lifetime activity, sleep patterns and reproduction to assess healthspan and predict time-to-death in the Mediterranean fruit fly" \$22,830

### Completed

NIH 1R56AG043995 – 01 (PI) 12/01/12- 6/30-14

"Pathways to Healthy Old Age in Fruit Flies: Towards a Conceptual Synthesis"

To study various metrics of health and the behavior and movement of individual flies.

NIH P01 AG08761-10 (PI) 2003-13

"Aging in the wild"; Project director of 5-project P01 focusing on aging in wild including nematodes, fruit flies, indigenous peoples, evolutionary demography and mathematical demography

ADDENDA

## Biosketch

James R. Carey

UC Davis

(Updated July 20, 2019)

## Publications

### Books

- Carey, J. R. and D. Roach. 2020. *Biodemography: An Introduction to Concepts and Methods (in production)* (Princeton University Press: Princeton).
- Carey, J. R. (2003) *Longevity. The Biology and Demography of Life Span*, Princeton University Press, Princeton.
- Carey, J. R. and D. S. Judge. 2000. *Longevity Records: Life Spans of Mammals, Birds, Reptiles, Amphibians and Fishes*. Vol. 8, Odense University Press, Odense, Denmark.
- Carey, J. R. 1993. *Applied Demography for Biologists*. Oxford University Press, New York.

### Journal articles, Book chapters, Encyclopedia entries

#### 2019

- Carey, J. R. 2019. 'Aging in the wild, residual demography and discovery of a stationary population identity.' in R. Sears, R. Lee and O. Burger (eds.), *Human Evolutionary Demography* (Open Book Publishers: Cambridge).
- Carey, J. R., and J. W. Vaupel. 2019. 'Biodemography.' in D. Poston and M. Micklin (eds.), *Handbook of Population* (Kluwer Academic/Plenum Publishers: New York).
- Papadopoulos, N. T., S. A. Papanastasiou, and J. R. Carey. 2019. 'Effects of early-life protein starvation on longevity and sexual performance of male medfly', *PLoS One*, in press.
- Papanastasiou, S. A., J. R. Carey, and N. T. Papadopoulos. 2019. 'Early-life protein starvation promotes male medfly performance', *PLoS One*, in press.
- Rao, A. R. R. S., and J. R. Carey. 2019. 'On three properties of stationary populations and knotting with non-stationary populations', *Journal of Mathematical Biosciences*, in press.
- Rao, A. S. R. S. and J. R. Carey. 2019. 'Chapter II: Behavior of stationary population identity in two-dimensions: Age and proportion of population truncated in follow-up.' in A. S. R. S Rao (ed.), *Handbook of Statistics Vol. 40* (Elsevier LTC).
- Zhao, Z.-H., C. Hui, R. E. Plant, M. Su, T. E. Carpenter, N. T. Papadopoulos, Z. Li, and J. R. Carey. 2019. 'Life table invasion models: Spatial progression and species-specific partitioning', *Ecology*, e02682.
- Zhao, Z.-H., C. Hui, R. E. Plant, N. T. Papadopoulos, T. E. Carpenter, Z. Li, and J. R. Carey. 2019. 'The failure of success: Continuous eradication-recurrence cycles of a globally-invasive pest', *Ecological Applications (in press)*.

#### 2018

- Carey, J. R., S. Silverman, and A. S. R. S Rao. 2018. 'Chapter 5: The life table population identity: Discovery, formulations, proof, extensions and applications.' in A. S. R. S Rao (ed.), *Handbook of Statistics: Integrated population biology and modeling Vol. 39* (Elsevier LTC).

## 2017

- Carey, J. R., N. Papadopoulos, and R. Plant. 2017. 'The 30-year debate on a multi-billion dollar threat: Tephritid fruit fly establishment in California', *American Entomologist*, 63: 100-13.
- Carey, J. R., N. Papadopoulos, and R. Plant. 2017. 2017. 'Oriental fruit fly outbreaks in California: 48 consecutive years, 235 cities, 1500 detections—and counting', *American Entomologist*, 63: 232-36.
- Ji, H., H.-G. Müller, N. T. Papadopoulos, and J. R. Carey. 2017. 'Quantifying functionals of age distribution in the wild by solving an operator equation', *Journal of Mathematical Biology*, 75: 973-84.

## 2016

- Carey, J. R., P. Liedo, J.-L. Wang, H.-G. Müller, Y.-R. Su, C. Xu, and J. W. Vaupel. 2016. Diet shapes mortality response to trauma in old tephritid fruit flies. PLoS One DOI:10.1371/journal.pone.0158468.
- Carey, J. R. 2016. Biodemography. The Biomedical & Life Sciences Collection, Henry Stewart talks Ltd, London (online at <https://hstalks.com/bs/3304/>).
- Papadopoulos, N., J. R. Carey, C. Ioannou, H. Ji, H.-G. Müller, J.-L. Wang, S. Luckhart, and E. Lewis. 2016. Seasonality of post-capture longevity in a medically-important mosquito (*Culex pipiens*). *Frontiers in Ecology and Evolution* 4:63 doi: 10.3389/fevo.20016.00063.
- Molleman, F., J. Javoš, R. B. Davis, A. Kaasik, M. Whitaker, E. Öunap, N. Wahlberg, K. Aduse-Poku, R. v. Velzen, T. Tammaru, M. E. Arlet, and J. R. Carey. 2016. The Natural History of Impairment: Sex and Species Specific Damages to Wings and Legs in a Community of Tropical Butterflies. (in review).

## 2015

- Carey, J. R. 2015. Biodemography. *Encyclopedia of Sociology*, 2nd Edition. Wiley Blackwell, New York.
- Harwood, J. F., K. Chen, P. Liedo, H.-G. Müller, J.-L. Wang, A. E. Morice, and J. R. Carey. 2015. Effects of female access and diet on insemination success, senescence, and the cost of reproduction in male Mexican fruit flies (*Anastrepha ludens*). *Journal of Insect Physiology* DOI: 10.1111/phen.12089.

## 2014

- Arlet, M. E., L. A. Isbell, F. Molleman, A. Kaasik, R. L. Chancellor, C. A. Chapman, R. Mänd, and J. R. Carey. 2014. Maternal investment and infant survival in gray-cheeked mangabeys (*Lophocebus albigena johnstonii*) *International Journal of Primatology* 35:476-490.
- Roach, D. A., and J. R. Carey. 2014. Population biology of aging in the wild. *Annual Review of Ecology, Evolution and Systematics* 45:421-443.
- Rao, A. R. R. S., and J. R. Carey. 2014. Generalization of Carey's equality and a theorem on stationary population. *Journal of Mathematical Biology* 71:583-594.
- Johnson, B., and J. R. Carey. 2014. Hierarchy and connectedness as determinants of health and longevity in social insects. *in* M. Weinstein and M. Lane, editors. *Sociality*,

Hierarchy, Health: Comparative Biodemography: A Collection of Papers. National Academies Press, Washington, D.C.

Carey, J. R., and D. Harder. 2014. Response to Liebhold. *American Entomologist* **Winter (2014)**:247.

Carey, J. R., R. E. Plant, and N. T. Papadopoulos. 2014. Response to commentary by Gutierrez et al. *Proceedings of the Royal Society B: Biological Sciences* **281**.

Carey, J. R. and D. Harder. 2014. Clear, present, significant, and imminent danger. Questions for the California light brown apple moth (LBAM) working group (TWG) (*Epiphyas postvittana*: Tortricidae). *American Entomologist* (**Winter Issue**).

## 2013

Valtonen A, Molleman F, Chapman CA, Carey, JR, Ayres MP, Roinnen H. 2013 Tropical phenology: Bi-annual rhythms and interannual variation in an Afrotropical butterfly assemblage. *Ecosphere* **4**, 1-28.

Papadopoulos N, Plant R, Carey, JR. 2013 From trickle to flood: The large-scale, cryptic invasion of California by tropical fruit flies. *Proceedings of the Royal Society of London* **20131466**. <http://dx.doi.org/10.1098/rspb.2013.1466>.

Harwood JF, Vargas RI, Carey, JR. 2013 Leg impairment magnifies reproductive costs in male Mediterranean fruit flies, *Ceratitis capitata*. *Entomologia Experimentalis et Applicata* **147**, 73-81.

Chiu JC, Kaub K, Zou S, Liedo P, Altamirano-Robles LA, Ingram D, Carey, JR. 2013 Deleterious effect of suboptimal diet on sleep-wake cycle in *Anastrepha ludens* manifests itself with age. *Scientific Reports* **3** : 1773 | DOI: 10.1038/srep01773.

Carey, JR, Liedo P, Wang J-L, Müller H-G, Su Y-R, Xu C, Vaupel JW. 2013 Geriatric trauma shapes mortality in a tephritid fly. (*in prep*).

## 2012

Carey, JR, Tuljapurkar S, Wachter K. 2012 Special Issue: Biodemographic determinants of lifespan. *Experimental Gerontology* **47**, 755-813.

Carey, JR, Tuljapurkar S, Wachter K. 2012 Editorial for the Special Issue: Biodemographic determinants of lifespan. *Experimental Gerontology* **47**, 755-758.

Carey, JR, Papadopoulos NT, Papanastasiou S, Diamanditis A, Nakas CT. 2012 Estimating changes in mean population age using the death distributions of live-captured medflies. *Ecological Entomology* **37**, 359-369.

Carey, JR, Müller H-G, Wang J-L, Papadopoulos NT, Diamantidis A, Kouloussis NA. 2012 Graphical and demographic synopsis of the captive cohort method for estimating population age structure in the wild. *Experimental Gerontology* **47**, 787-791.

Zou S, Carey, JR, Liedo P, Ingram DK, Yu B. 2012 Prolongevity effects of a botanical with oregano and cranberry extracts in Mexican fruit flies: examining interactions of diet restriction and age. *AGE* **34**, 269-279. (doi:10.1007/s11357-011-9230-8).

Novoseltsev VN, Michalski AI, Novoseltseva JA, Yashin AI, Carey, JR, Ellis AM. 2012 An age-structured extension to the vectorial capacity model. *PLoS One* **7**, e39479. doi:39410.31371/journal.pone.0039479.



- Molleman F, Kaasik A, Whitaker MR, Carey, JR. 2012 Partitioning variation in duration of ant feeding bouts can offer insights into the palatability of insects: Experiments on African fruit-feeding butterflies. *Journal of Research on Lepidoptera* **45**, 65-75.
- Liedo P, Carey, JR, Ingram DK, Zou S. 2012 The interplay among dietary fat, sugar, protein and acai (*Euterpe oleracea* Mart.) pulp in modulating lifespan and reproduction in a Tephritid fruit fly. *Experimental Gerontology* **47**, 536-539.
- Duyck P-F, Kouloussis N, Papadopoulos NT, Quilici S, Carey, JR. 2012 Exceptional longevity in the tephritid, *Ceratitis rosa*, a close relative of the Mediterranean fruit fly. *Journal of Economic Entomology* **105**, 371-373.

## 2011

- Carey, J.R., 2011. Biodemography of the medfly: Aging, longevity, and adaptation in the wild. *Experimental Gerontology* **46**, 404-411.
- Carey, J.R., 2011. Sleeper medflies bring serious quarantine risks to California growers, Western Farm Press, San Diego.
- Diamantidis, A.D., Carey, J.R., Nakas, C.T., Papadopoulos, N.T., 2011. Ancestral populations perform better in a novel environment: Domestication of Mediterranean fruit fly populations from five global regions. *Biological Journal of the Linnean Society* **102**, 334-345.
- Diamantidis, A.D., Carey, J.R., Nakas, C.T., Papadopoulos, N.T., 2011. Population-specific demography and invasion potential in the medfly. *Ecology and Evolution* **4**, 479-488.
- Kaasik, A., Molleman, F., Isbell, L., Carey, J.R., Mänd, R., 2011. Social factors increase fecal testosterone levels in wild male gray-cheeked mangabeys (*Lophocebus albigena*). *Hormones and Behavior* **59**, 605-611.
- Kouloussis, N., Katsoyannos, B., Müller, H.-G., Wang, J.-L., Su, Y.-R., Carey, J.R., 2011. Seasonal trends in *Ceratitis capitata* reproductive potential derived from live-caught adult females in Greece. *Entomologia Experimentalis et Applicata* **140**, 181-188.
- Mason, J.B., Cargill, S.L., Griffey, S., Reader, J., Anderson, G.B., Carey, J.R., 2011. Transplantation of young ovaries restored cardioprotective influence in postreproductive-aged mice. *Aging Cell* **10**, 448-456.
- Papadopoulos, N.T., Papanastasiou, S., Müller, H.G., Wang, J.-L., Yang, W., Carey, J.R., 2011. Dietary effects on sex-specific health dynamics of the medfly: Support for the dynamic equilibrium model of aging. *Experimental Gerontology* **46**, 1026-1030.
- Papanastasiou, S.A., Diamantidis, A.D., Nakas, C.T., Carey, J.R., Papadopoulos, N.T., 2011. Dual reproductive cost of aging in male medflies: dramatic decrease in mating competitiveness and gradual reduction in mating performance. *Journal of Insect Physiology* **57**, 1368-1374.
- Zou, S., Liedo, P., Altamirano-Robles, L., Cruz-Enriquez, J., Morice, A., Ingram, D.K., Kaub, K., Papadopoulos, N., Carey, J.R., 2011. Recording lifetime behavior and movement in an invertebrate model. *PLoS One* **6**, e18151.

## 2010

- Boyden, N.B., Carey, J.R., 2010. From one-and-done to seasoned veterans: A demographic analysis of individual career length in Major League Soccer. *Journal of Quantitative Analysis in Sports* 6, DOI: 10.2202/1559-0410.1261.
- Carey, J.R., 2010. Book Review: *Supercentenarians* by H. Maier, J. Gampe, B. Jeune, J.-M. Robine, and J. W. Vaupel. *Population and Development Review* 36, 846-847.
- Carey, J.R., 2010. The Mediterranean fruit fly (*Ceratitis capitata*) invasion of California deepens: Response to an alternative explanation for recurring outbreaks. *American Entomologist* 56: 158-163.
- Carey, J.R., Laursen, J., Glaser, S., Raphael, S., Miller, G., Crawford, J., Lane, T., LiWang, P., Hammond, K., Groves, T., Pittet, J.-F., Stuart, D., Kolaitis, P., Serwer, L., Chen, M., Feer, K., 2010. University of California research seminar network: A prospectus. *PLoS Biology* 8, e1000289.doi:10.1371/journal.pbio.1000289.
- Carey, J.R., Molleman, F., 2010. Reproductive aging in tephritid fruit flies. *Proceedings of the New York Academy of Sciences* 1204, 139-148.
- Duyck, P.-F., Kouloussis, N., Papadopoulos, N.T., Quilici, S., Carey, J.R., 2010. Exceptional longevity in the tephritid, *Ceratitis rosa*, a close relative of the Mediterranean fruit fly. submitted.
- Duyck, P.-F., Kouloussis, N., Papadopoulos, N.T., Quilici, S., Wang, J.-L., Jiang, C.-R., Müller, H.-G., Carey, J.R., 2010. Lifespan of a *Ceratitis* fruit fly increases with higher altitude. *Biological Journal of the Linnean Society* 101, 345-350.
- Mason, J.B., Cargill, S.L., Anderson, G.B., Carey, J.R., 2010. Ovarian status influenced the rate of body-weight change but not the total amount of body-weight gained or lost in female CBA/J mice *Experimental Gerontology* 45, 435-441.
- Molleman, F., Whitaker, M.R., Carey, J.R., 2010. Rating palatability of butterflies by measuring ant feeding behavior. *Entomologische Berichten* 70, 52-62.
- Papadopoulos, N.T., Liedo, P., Müller, H.-G., Wang, J.-L., Molleman, F., Carey, J.R., 2010. Cost of reproduction in male medflies: The primacy of sexual courting in extreme longevity reduction. *Journal of Insect Physiology* 56, 283-287.

## 2009

- Arlet, M.E., Carey, J.R., Molleman, F., 2009. Species, age and sex differences in type and frequencies of injuries and impairment among four arboreal primate species in Kibale National Park, Uganda. *Primates* 50, 65-73.
- Arlet, M.E., Grote, M.N., Molleman, F., Isbell, L.A., Carey, J.R., 2009. Reproductive tactics influence cortisol levels in individual male gray-cheeked mangabeys (*Lophocebus albigena*). *Hormones and Behavior* 55, 210-216.
- Carey, J.R., 2009. Book review: *Mortal Coil: A Short History of Living Longer* by David Boyd Haycock. *Population and Development Review* 35, 828.
- Carey, J.R., Liedo, P., Müller, H.-G., Wang, J.-L., Yang, W., Molleman, F., 2009. Leg impairments elicit graded, sex-specific demographic response of the tephritid fruit fly *Anastrepha ludens*. *Experimental Gerontology* 44, 541-545.

- Carey, J.R., Scott, T.W., Zalom, F.G., Hammock, B.D., Leal, W.S., 2009. Rethinking departments of entomology. *American Entomologist* 55, 88-90.
- Carey, J.R., Vaupel, J.W., 2009. Biological demography, in: Yi, Z. (Ed.), *Encyclopedia of Life Support Systems*. Eolss Publishers, Oxford.
- Diamantidis, A.D., Papadopoulos, N.T., Nakas, C.T., Wu, S., Müller, H.-G., Carey, J.R., 2009. Life history evolution in a globally-invading tephritid: Patterns of survival and reproduction in medflies from six world regions. *Biological Journal of the Linnean Society* 97, 106-117.
- Kouloussis, N.A., Papadopoulos, N.T., Müller, H.-G., Wang, J.-L., Mao, M., Katsoyannos, B.I., Duyck, P.-F., Carey, J.R., 2009. Life table assay for assessing relative age bias in medfly capture methods. *Entomologia experimentalis et applicata* 132, 172-181.
- Kulminski, A.M., Molleman, F., Culminkaya, I.V., Arbeev, K.G., Ukraintseva, S.V., Carey, J.R., Yashin, A.I., 2009. Date of eclosion modulates longevity: Insights across dietary-restriction gradients and female reproduction in the Mexfly, *Anastrepha ludens*. *Experimental Gerontology* 44, 718-726.
- Mason, J.B., Cargill, S.L., Anderson, G.B., Carey, J.R., 2009. Transplantation of young ovaries to old mice increased survival and life span in transplant recipients. *Journal of Gerontology: Biological Sciences* 64A, 1207-1211.
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