

## In What Form Does Global Capital Flow Leave Behind Memories?

### The Story of the Apple Snail Caught Between the Green Revolution and the Organic Food Movement<sup>1</sup>

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**Abstract:** Using Taiwan's *United News Daily* archive (dated between 1970 to 2010) as well as Taiwan's shifting discourses of the Green Revolution and the organic food movement as study material, this project analyzes the narrative frameworks produced in regard to the apple snail (*Pomacea canaliculata*) in Taiwan. I demonstrate the importance of understanding these discourses as part of two interconnected meta-narratives. I argue that these narrative frameworks have decisively molded people's experiences with and actions toward the apple snail, the land, and themselves. In analyzing and extending beyond the narratives of irreparable ecological destructions, we may recognize sites of memories left behind by global capital flow.

**Keywords** the apple snail; invasive species; Green Revolution; organic food movement; memory; environmental destruction

#### PREVIEW: HOW THIS ESSAY SHOULD BE USED

In Taiwan, since around 1985, the apple snail, *Pomacea canaliculata* (Lamarck) (Gastropoda: Ampullariidae), has become an entity completely alienated from its surroundings. The people in Taiwan would not eat it because its flesh is said to be disagreeably soft. They do not know this from experience but from the "fact" that the apple snail has been said to have been abandoned by aquafarmers due to its supposed failure to sell well as a food item. In addition, people are afraid to touch the snails, as they are believed to host hundreds of disease-inducing organisms. Apple snails are extremely prolific; Taiwan's warm winter allows them to overwinter in the human-made wetland of rice paddies, while young rice seedlings provide them with ample food. Apple snails can eat a lot of rice seedlings and other economic crops, making them a serious threat to agricultural production. Because they are said to be an alien species without a local predator, chemical pesticides are liberally applied yearly to control the apple snail population.

The combined fears of the apple snail and of the abundant pesticides used to kill it prevent all but farm workers from wanting to enter any rice paddies. This apprehension alienates a rice-eating people from the farmland that has always produced their most essential crop. Estranged from their land, people lose their connection with agrarian Taiwan and the memories related to it. From the 1990s onward, toward the heyday of the Taiwanese organic movement (between 2003 and 2012), this amnesiac effect would be compounded by a quest to return to a purified sense of nature through an organic food movement represented by foreign-sounding shop titles and clean, calm, and exotic-looking storefronts.

In only a few decades agrarian Taiwan has been reduced to a repetitive cycle whereby farmers, molluscicide, and the apple snail wage an ongoing war against each other. Before the development of this destructive relationship, around 1985, rice culture in Taiwan and many Asian countries supported a diverse ecosystem: Irrigation of river water brought

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native mollusks, loach (*Misgurnus anguillicaudatus*), and small river fish to the rice paddies. Frogs, insects, waterfowl, and other beneficial animals kept one another in check. What are the social and economic processes that converted Taiwan's diverse agrarian ecosystem into a monotonous battlefield? The process can be contextualized within the sway of two opposing but interrelated global agricultural movements, the so-called Green Revolution, which was propagated throughout Taiwan in the 1960s-1990s, and Taiwan's version of the "Organic Food Movement," which began to enter the popular consciousness in late 1980s-2010s.

By examining this process using *United News Daily* archives (dated between 1970 to 2010), this paper seeks to identify and call into question a common narrative by which Taiwan's agrarian past has been remembered. By calling it a narrative, which is indeed a meta-narrative, I suggest that this process of framing the past is a powerful storytelling method that structures and delimits how people in Taiwan remember and experience the agrarian past. In addition, I argue that despite its dominance, this narrative is only one among many other possible meta-narratives. Through a narrative analysis, I demonstrate our ability to spell out the particular politics, hegemonic effects, and inherent problems that such a narrative conceals. Exposing the dominant narrative in this way allows us to escape it in order to find alternative sites of memory and, potentially, appropriate political actions.

The reader may find the flow of the prose has an uneasy relationship with defining its scope, as *time* is complicated by a narrative's ability to render itself timeless, even as old narratives give rise to new ones. Likewise, *location* is always a complex interplay between the global and the local.

Readers interested in exploring global/local interactions may find this essay revealing of the complex interconnection between the two, in this case between Taiwan and the world. An example is the Green Revolution, a process that finds its empirical success in "the third world," while being commonly listed as an achievement of the industrially developed "West." The fact that the Green Revolution was considered a Western-led global modernizing effort made it easy for Taiwan to fall under its sway. In turn, the success of the Taiwanese "economic miracle" and "agriculture boom" enhanced the Green Revolution's credibility. Similarly, the pain, loss, and confusion experienced in Taiwan in these global processes are local specificities with global resonances. For example, I make an argument in this essay about the exotic style manifested in Taiwan's organic shops and web stores. While this style can easily be read as a reflection of the consumerist worship of the West, I suggest, instead, that we regard this aesthetic as a complex indicator or site of memory: a place that commemorates the political struggles of the organic revolution in the United States in the 1960s and 70s, and simultaneously bemoans local ecological disruptions. Methodically, the paper employs several analytical terms from cultural theory to comprehend Taiwan's complex boom-and-bust experience under global capitalism; these terms are *meta-narrative*, *hyper-reality*, and *global capital flow*.

#### **PUTTING THE APPLE SNAIL IN A GLOCAL CONTEXT: THE GREEN REVOLUTION AND THE ORGANIC FOOD MOVEMENT**

Global environmentalist critics may be tempted to ask: Which came first—the Green Revolution or the organic food movement? While farming without synthesized, petroleum-based agrichemicals dates to prehistory, in popular conception the contemporary organic food movement is often defined as a new movement that "values sustainable food, higher levels of nutrition and food safety, and environmentally responsible agriculture" (Park 2011, 120). Exemplified by the supermarket chain Whole Foods, the U.S. organic food movement is typically regarded as a *reaction* against large-scale industrial agribusiness, in which

agrichemicals and genetically-engineered seeds are routinely used for mass food production. Such a generalization is a significant departure from the U.S. organic farming movement's roots in 1960s counterculture, when activists began to connect antiwar protests and civil disobedience with organic farming. They reinvented whole wheat bread, rediscovered soy, set up farming communes, and established co-ops for the implicit or explicit purpose of gaining self-sufficiency in the fight to overthrow the military agri-industrial complex (Belasco 2007).

Less than a century later, the neglected memory of organic agriculture's radical history can be linked to the naturalization of chemical pesticide and synthetic fertilizer use as conventional practice in the U.S., Taiwan, and globally. The ethos of this defining characteristic of the U.S. industrial food production system speaks to the "application of scientific knowledge to agriculture," via systemic use of agrichemicals, hybrid or GM seeds, and irrigation infrastructure to achieve higher crop yields (Wolff 1986; Trewavas 2002; Janaiah, et al 2005). This agriculture movement, dubbed the "Green Revolution," marks its beginning in Mexico in 1943, when Norman Borlaug and others working with the Rockefeller Foundation developed a high yield wheat variety and a system of intensive agriculture involving the use of pesticide, chemical fertilizers, mechanized production, and irrigation systems. The resulting production boost led to the transference and establishment of similar practices and institutions in Asia in the 1960s (Borlaug 2000). The transference began in then famine-struck India, and later spread to other parts of Asia. It is important to note, however, that not all efforts in this process were driven by the U.S. For instance, as a part of the Green Revolution, the International Rice Research Institute (IRRI) in the Philippines, a renowned agriculture center, helped foster regional agricultural leadership, seed development, and collaborative research. In fact, the Green Revolution, credited with tripling Asian crop yields from the 1950s-1990s (Borlaug 2000), is often called the Asian Green Revolution.

Due to the impressive tripled harvest per acre in 35 years across Asia, the Green Revolution often seemed beyond reproach with its rhetoric of numbers and its seemingly scientific, ahistorical objectivity. This rhetorical feature persists among proponents for a continued Green Revolution, particularly involving the use of genetically modified seeds. Often preoccupied with "averting 'Malthusian' disasters" (Trewavas 2002), the proponents of the Green Revolution are running a numerical race that tries to ensure that the growth of agriculture outpaces that of the global population. The rhetoric and its Malthusian mathematical preoccupation never falter, even when the regions that have adopted the measures of the Green Revolution have suffered environmentally from ground water depletion and pollution, decreased soil productivity, soil acidification and salinization, toxic effects of residual chemical pesticides, loss of indigenous crop diversity, ecological disruption, and heavy dependence on more technological fixes (Shiva 1989). All of which, of course, threaten the very population augmented by the Green Revolution and that depends upon its technologies for crop production.

The premise that the world is burdened by unsustainable population growth is used to justify unsustainable measures and consequences of the Green Revolution as minor inconveniences. In geopolitical terms, the Green Revolution extends beyond the transcendental history of science's struggle against Malthusian predictions, serving as well to fortify an anticommunist block in Japan, Taiwan, India, and the Philippines (Cleavor 1972). Hungry stomachs are decisive factors in political struggle, and guerrilla wars and socialist uprisings in the 1950s and 60s had great potential to spark more riots in many countries of the region. Ensuring a secure supply of affordable food alleviated the threat of a socialist revolution. On the other hand, while the scientists of the Green Revolution may have been motivated

by a pure, Promethean spirit of saving the world, scientists are expensive to maintain. Many measures of the Green Revolution worked to compel farming communities around Asia to become integrated into the capitalist market. Particularly, as U.S. wartime manufacturers converted from supplying bombs to producing nitrogen for fertilizers after WWII, the zeal of the Green Revolution facilitated the conversion of the above-mentioned countries into ready markets for the large quantities of chemical fertilizers and pesticides produced by U.S. factories. It is against the backdrop of such a web of unequal global exchanges of ideas, material, people, cash, and plant and animal species that the life story of the apple snail takes shape.

#### WHAT IS THE APPLE SNAIL?

The apple snail or the golden apple snail, *Pomacea canaliculata* (Lamarck) (Gastropoda: Ampullariidae), is a freshwater mollusk originating in Latin America in the floodplains along rivers in Paraguay, Brazil, and Bolivia (Joshi 2005). It is also known as the golden miracle snail, jumbo snail, Argentinean apple snail, channeled apple snail, mystery snail, and South American apple snail. The name apple snail covers many species of ampullariid (Cowie and Thiengo 2003; Cowie and Hayes 2005; Joshi 2005). Apple snail or golden apple snail is the common name for the pest species in Asia. Often called Fushouluo (福寿螺) in Chinese, when it was being marketed in aquaculture in the late 1970s, it had several common names, which can be translated as gold treasure snail (金宝螺), nugget snail (元宝螺), and snail of prosperity and longevity (福寿螺).

In Asia, the apple snail is said to have been first introduced to Taiwan from Argentina in 1979 as a source of food for local consumption as well as for exportation in the form of canned shellfish. In mainland China, it was introduced to Guangdong Province by the Chinese diaspora from Brazil and gradually crept inland to several provinces (Li, et al 2009, 229-230). In the Philippines, it has been suggested that the snail was introduced by President Marcos's administration (Rosset 2002). By 1982, in Taiwan, four years after its introduction, the snail population had reached serious pest levels in rice paddies. Shortly after its introduction to these regions, the apple snail spread to Japan and many parts of Asia in the 1980s (Cowie, et al 2008, 704).

Over the course of the past 30 years in Taiwan, according to researchers' estimations, pest control measures against apple snails have cost the government and individual farmers 200 million NT dollars (roughly 6.6 million USD) annually, while the estimated visible and hidden social cost could reach as high as ten billion NT dollars (roughly 0.3 billion USD) (Yang and Chang 2003). In the Philippines, the loss of rice production in economic terms caused by the golden apple snail was "12-18 million US dollars, annually" (Naylor 1996, 443). These estimated costs cannot measure the impact of the apple snail's importation on human health and ecosystems, nor can they articulate the fact that those reaping the profits are often different from those suffering the consequences. They do testify that the apple snail is framed as a drain on the economy; however, the framework of analysis in this paper shows that it is in fact an "economy of loss," in which those who profit from selling, advocating, and distributing pesticides are not adequately considered or identified.

#### NO LONGER PROFITABLE BUT STILL ALIVE—APPLE SNAILS' ALIENATION

Focusing on the reportage by Taiwan's *United News Daily* (Lianhe Bao) on apple snail-related issues since 1979, this paper analyzes Taiwan's changing discourse concerning the apple snail from 1970 to 2010.<sup>2</sup> As one of two newspapers with the largest readership in Taiwan in the latter half of the 20th century, *United News Daily's* coverage of the apple snail

indicates a general trend.

In Taiwan, between 1982 and 1984, a distinctive narrative on the apple snail developed concurrently with environmental concerns raised in the *United News Daily*.<sup>3</sup> The newspaper noted that greedy local merchants introduced the prolific apple snail from Latin America to Taiwan, thinking it would be a highly profitable food source for the farming population. But locals found its soft texture unsatisfactory,<sup>4</sup> and the apple snail was abandoned by aquafarmers and released into local rivers, ponds, and irrigation systems. In this story of an alien species' disruption of local ecology, apple snails and the hubris of greedy merchants are the principal antagonists.

On the surface, the narrative serves the role of cautionary tale, condemning greed while offering an environmental and moral lesson about the dangers of poorly-considered importation of alien species. On the level of ideology and practices, however, this narrative participates in shaping collective consciousness and memory by scapegoating certain causes for environmental destruction, and in justifying an urgent demand for total extermination in the hope of protecting systemic purity. Furthermore, the narrative projects images of exotic species as hateful and destructive, implicitly calling for a war to defend against a perceived invasion. The storyline functions as a meta-narrative of innocence lost since the 1980s.

From the 1980s to the popular rise of organic agriculture consciousness in Taiwan at the turn of the twenty-first century, the narrative of greedy merchant and invasive apple snail has shaped actions for environmental protection into an eradication model that paves the way for practices, however unconscious, aiming at a total extermination of pests with pesticides. If we analyze this narrative in terms of capital flow, we see money transfer from raising the apple snail in aquaculture to a new economy based on killing the snail. Indeed, instead of just bearing witness to the flow of capital, the narrative (working like a simple but insidious anti-invasive apple snail campaign) played a decisive role in shaping and directing public opinions, government efforts, and environmental actions toward creating a new economy that generated profits by promoting liberal and chronic use of a highly toxic pesticide (triphenyltin acetate 三苯醋錫 or 三苯基錫). Functioning like a mantra since the late 1980s onward, this narrative silences dissenting opinion and contributes to a complete paradigm shift, one obscuring memories of an entire way of life.

The newspaper archive offers evidence that the narrative of lost innocence triggered by the apple snail, and of the resulting turn to agrichemicals as necessary defenses against invasive species, is not a fated script. As early as the inception of this meta-narrative that blames a handful of greedy local merchants for their erroneous importation of an ecological disaster, newspaper articles published in 1982 and onward in the *United News Daily* indicate that other narratives offered very different solutions. These, what I would call minor, narratives include:

1. Offering monetary rewards for apple snails and eggs collected.
2. Keeping ducks or fish in rice paddies.
3. Eating apple snails to control their population.

From an economic viewpoint, the first approach entails draining capital from the responsible government agencies while offering small economic gains to egg-collecting farm workers. Both the second and third approaches continue the mode of subsistence farming rather than modern, agrichemical driven, Green Revolution-inspired modes of production. The fish species recommended for controlling apple snails is *Mylopharyngodon piceus* Richardson 烏鰡 (LHB 1985/04/16). In the early 21st century, the heyday of Taiwan's organic agriculture movement, *Mylopharyngodon piceus* Richardson, as well as the Taiwan Duck, would be "rediscovered" as agents of biological control.

Accompanying these minor narratives, less dominant voices offer a distinctly different take on the increasingly prevalent attitude targeting the apple snail as an alien agent of environmental destruction. For example, a news article in 1984 asserted, “the pesticide intended for apple snails proved to be more lethal to several native species” (LHB 1984/04/23). From this and other such comments it can be inferred that the most important actor in Taiwan’s ecological destruction, the snail pesticide, was often omitted from the meta-narrative of innocence lost. Indeed, when comparing varied approaches to the substantial economic structural change resulting from chemical control of the apple snail, we see capital flowing from farm workers and government agriculture agencies to pesticide manufacturing plants in Taiwan and in the U.S. The meta-narrative of innocence lost has served to guarantee a process of identifying the apple snail as an “invasive species” corrupting an idealized past, and justified a total “war” against the invader that promoted increased sales of pesticides.<sup>5</sup> The capital investment in the genocide of the apple snail—as seen in economic losses caused by the apple snail and expenditures on pesticides—determined a lose-lose situation on two levels. It left the key player of environmental restructuring—industrial pollution and the pervasive use of chemicals in the form of pesticides and fertilizers—unaccounted for, choosing a simple narrative of environmental invasion to replace an understanding of ecosystems as complexly interdependent.

We may sum up our discussion on the meta-narrative of innocence lost by relating it to the Green Revolution and asking: How does the meta-narrative work with the hegemony and economic interests of the Green Revolution? First, the meta-narrative’s assertion that avaricious local merchants and their wrongful introduction of the apple snail were responsible for Taiwan’s ecological upheaval was representative of a mentality generated by the Green Revolution and the profit-driven economic practices that promoted it. Since to be greedy is nothing more than to be profit-driven, the motive of greed is not a moral deficiency, but rather an integral part of the economic model. In this sense, the villainous merchants of the narrative really acted within the ethos of their profession. Second, the meta-narrative helped obscure the negative effects of the Green Revolution by placing the apple snail on trial while allowing other players to recede into the background. Lastly, this meta-narrative created a reality of its own, a hyper-reality, a moral tale of selfish importers and a pathos-inducing claim of irreparable ecological destruction that led Taiwan to its opposite: nostalgia for innocence and attempts to re-create purity, however limited in scale. In this way, the narrative contributed to the shift of Taiwan’s organic movement towards one of “supermarket pastoralism,” to borrow the term from cultural critic Michael Pollan (2006).

#### **ORGANIC MOVEMENT IN TAIWAN: BACKGROUND**

Taiwan’s organic movement developed through both grassroots efforts and government initiatives. At the grassroots level, citizen groups and academics voiced concern about the effects of rapid urbanization, industrialization, and agricultural modernization in the early 1980s, but their warnings were largely unacknowledged. The mainstreaming of environmental consciousness that enlisted the language of environmental protection did not happen until the antinuclear movement in Taiwan, which began as early as the 1960s and galvanized significantly in the wake of the Chernobyl disaster from 1986 onward (Chen 1994, 258-60). In the government sector, as early as 1985, the Agriculture Council invited scholars and experts to assess the viability of organic agriculture in Taiwan, leading to the establishment of experimental farms in Tainan and Kaoshiung (Chen 2007, 1).

Generally speaking, major representatives of organic food production and distribution are an eclectic group, including Buddhism-inspired vegetarians, homemakers’ organiza-

tions, cancer survivors, and savvy business entrepreneurs, among others. Buddhism practitioners founded Lee Zen Shops between 1995-98, and the Lee Zen organization acquired the status of national certifier of organic farms and produce in 2003, after the government began delegating such power to NGOs in 2001. Emphasizing “credibility, mutual help, and gratitude” in all aspects of its practices, Lee Zen’s coherent moral philosophy, implemented through partnerships with farmers, sets trusted certification standards and provides a distribution network that connects farmers to consumers through Lee Zen’s 101 (and growing) fair-priced shops around the island. Both the company’s moral coherence and its close partnership with local farmers distinguish it from other groups.

Another group providing certification and stable contracts with local farmers is the Homemakers’ Union, founded in 1989 by community activist homemakers. In 2001, this food safety and environmental watchdog group established co-ops all around Taiwan and as many as 40 produce pickup stations. Representative of the savvy business entrepreneur, Santa Cruz Organic Food (統一聖德科斯)—unrelated to U.S.-based Santa Cruz Organics, despite the shared name—was established in 1985 and is now the largest organic specialty chain store, selling both local and imported organic products, and boasting at least 111 storefronts in Taiwan. It is this last group, the commercial enterprise, that most concerns this paper’s analysis, as the group’s success has decisively reshaped the organic food panorama in Taiwan in the past decade.

Rather than ideological commitments to environmentalism, top-down government initiatives and commercial forces have played the most significant role in developing and mainstreaming organic food in Taiwan. As a subtropical island where rice can have two or three annual harvests, Taiwan has ironically been deemed agriculturally unprofitable due to the following factors: In the process of Taiwan’s industrialization, the price of produce was artificially lowered to support rapid economic development and to drive farmers into export-oriented industrial sectors (Bello and Rosenfeld 1990, 186). Taiwan’s entrance into the WTO in 2002 pitted Taiwan’s agriculture against subsidized farm produce from the U.S. and other countries. Farmers’ diminished income drove the government to pay farmers to fallow their lands, a practice that reflected the global economy’s strange distortion of local agriculture (Yan and Zhuang 2004) and forced farmers to be alienated from the land’s natural productivity and compete with one another on the basis of which country offers more subsidies for its agriculture.

In such a context, organic agriculture has been promoted for its potential profitability, while concerns of sustainability and environmental ethics are often merely desirable byproducts. The popular media and government agencies in Taiwan presented organic agriculture to both farmers and the general population as offering “added economic values,” and carrying the promise of “a new market and new business opportunities” (Ma 2008, 98; Ko 2008). However, the middlemen (distributors) are generally the ones really profiting from this system; with few exceptions, the actual practice of conversion from nonorganic to organic farming decreases farmers’ income while intensifying their labor output. Such odds against organic farming practices often push farmers to deploy moral and philosophical idealism to sustain their commitments (Ma 2008, 98-99).

Despite organic farmers’ hardships, methodological bottlenecks, and the fact that capital flows mostly to distributors rather than farm workers, Taiwan’s organic food movement managed to gain increased popularity and a larger market. The past decade has seen a proliferation of organic food specialty shops, organic chain stores, online organic shops, and specially designated organic sections in major conventional supermarkets.<sup>6</sup> While there have been significant increases in organic agriculture, by 2009 only 2,962 hectares of land

were dedicated to organic cultivation, accounting for a minute 0.35% of total agricultural land.<sup>7</sup> At the same time, “70% of organic food and beverage sold in Taiwan is imported.”<sup>8</sup> Such numbers show how Taiwan’s organic food movement usually does not or cannot prioritize the distinction between imported and local organic food. A study shows that only 15% of consumers indicated that they purchase organic food to support local organic farmers (Zhang 2009, 6). As such, Taiwan’s organic food movement has a disturbingly foreign face. With the exception of Lee Zen (里仁) and Taiwan Homemakers’ Union (台灣主婦聯盟), most of the specialized organic food chain stores in Taiwan bear exotic, Western-sounding names reminiscent of idyllic European provincial life or U.S. organic culture, such as Cotton Fields, Green Village, and Santa Cruz. Such a trend is fortified in storefront appearance, interior layout, web design, company philosophy, and so on.

#### **SUPERMARKET PASTORAL**

How do we understand the exotic face of the movement? To what extent have decades of scapegoating the apple snail and other invasive species given shape to the organic food movement’s romantic, gentrified, and self-exiled vision of environmental cleanliness? In the era of the Organic Food Movement we find a sequel to the earlier meta-narrative of innocence lost: one of paradise regained. This new narrative is not a reaction to the complex reality of Taiwan but a symptomatic way of dealing with loss that ironically completes the process of erasing Taiwan’s agrarian past from memory. How does the movement deal with loss? Similar to the earlier meta-narrative in its lack of engaging the ecosystem’s intricate webs in the here and now, the new meta-narrative promotes: A) a vision of environmentalism that centers on consumer health consciousness and personal increase of organic food consumption; B) a pure land as a paradise that commercially simulates exotic and gentrified comfort. Such a new vision can be characterized by cultural critic Michael Pollan’s term, “supermarket pastoral” (2006). The supermarket pastoral allows citizens to downplay and turn away from public crisis regarding the ecosystem, and to direct mental energy towards eating healthy organic food, thereby shaping potential political protest into consumerist concerns. This change in the narrative allows capital to shift towards an inward, seemingly privatized, vision of environmentalism. The emphasis on personal health is a significant departure from the early environmentalist scene in Taiwan decades earlier. In those days, “averaging one antipollution demonstration per day during 1987-88” and representing “the rejection by increasing numbers of Taiwanese of the KMT’s technocratic pursuit of growth at any cost,” environmentalist actions effectively stopped the construction of a \$160 million Du Pont Corporation titanium dioxide plant, forced the closing of a major petrochemical plant owned by the British ICI Corporation, and suspended the installation of a fourth nuclear power plant—a suspension that continues to this day (Bellow and Rosenfeld 1990, 211).

The present day organic food movement in Taiwan—unlike its antagonistic environmentalist precursors—seems less politicized and more personalized and consumption-oriented in its pursuit of food safety and sustainability, a change in temperament very similar to the shift in the U.S. from the 1960s radical organic agriculture movement to a Whole Foods-branded consumerist version.



Table 1 Taiwan Organic Hectares

YEAR	RICE PADDIES	VEGETABLE	ORCHARD	TEA PLANTATION	OTHERS	TOTAL HECTARE
1996	61.5 (125)	26	67	5	-	159.6 (223.10)
1997	238 (251)	43	100	16	-	396.5 (409.50)
1998	302 (380)	98	156	22	-	579 (657.00)
1999	466 (468.42)	170	157	22	5	820.5 (822.92)
2000	596.27 (560.27)	154	209	37	17	1012.53 (976.53)
2001	493.39 (487.73)	171	159	56	19	897.91 (892.25)
2002	609.04 (600.23)	174	188	55	22	1018.9 (1010.16)
2003	600	228	159	63	43	1092
2004	743.67	231.80	153.62	76.32	40.67	1246.08
2005	697.42	342.95	151.60	72.37	70.56	1334.90
2006	704.02	378.65	206.78	70.82	348.39	1708.65
2007	842.46	438.37	258.12	125.07	349.23	2013.26
2008	949.43	518.43	295.52	139.84	453.10	2356.31
2009	1084.80	912.64	290.59	169.43	504.04	2961.50
2010	1316.93	1435.86	462.34	218.58	601.36	4043.58
2011	1653.62	1692.09	612.73	263.18	794.07	5015.69
2012	2006.89	1784.59	713.26	407.87	937.14	5849.73
2013	2058.97	1957.24	833.31	447.23	640.02	5936.76

**Note:**

For Rice field, the number in the parentheses refers to the 2nd crop cultivated land area.

Data source 1996-2006: Agriculture and Food Agency, Council of Agriculture, Taiwan (latest update: 2007/04/11)

Data source 2007-09: Organic Agriculture Information Center info.organic.org.tw (latest update: 2013; last access: 12/15/2014)

**ON FORMS OF MEMORIES AND HOW TO RECOGNIZE THEM**

Examining how Taiwan’s organic food movement has been informed by a storyline of ecological innocence lost and irreparable systemic destruction helps us understand the movement’s supermarket pastoralism and privatized consumer choices as gestures towards purifying a ruined land. But the reclaiming process is complicated by the fact that Taiwan’s limited acreage of organic cultivation, a mere 0.7% of Taiwan’s total farmland (Yang 2014), cannot sustain the consumer practices that it prescribes.

Indeed, by extending our analysis beyond Taiwan’s increasing organic acreage (which peaked between 2003 and 2012), we see elsewhere on the island a continuation of the silent battle between conventional (agrichemical-using) farmers, molluscicide, and apple snails. To some extent, the sense of continued environmental destruction defines the organic movement as a base from which to project an image of purity, and to justify organic products’ high cost. Though the prestige of paradise regained may have relied heavily on a global cultural capital, the movement’s success in converting ecological issues into a privatized, individual consumer experience of supermarket pastoralism also alienates people from the land, their past, and themselves.

Taiwan’s past and the history of the apple snail are intertwined. Both are caught between paradigm shifts in agriculture: the agrichemical-driven Green Revolution and the environmentally-protective organic movement. When the meta-narrative of innocence lost began to consolidate in the 1980s, the narrative cast the apple snail in Taiwan as an uncontrollable

invasive species that no animals will eat. Meanwhile, the same process alienated people from their environment as abstract binaries of nature vs. human and purity vs. pollution demarcated lines between past and present. By framing the snail as an invasive species with no natural predator, a narrative logic evolved that no animals, including humans, would consume them. News reports of apple snails as hosts of multiple diseases (LHB 1982/08/23 Section 3) and agrichemical pollution of the rice paddies added more truth and weight to the logic. The hegemonic effect of the narrative was that the eating of apple snails, creatures the narrative already rendered aberrant, became seen as unnatural. By extension, the meta-narrative successfully alienates a people from an ancestral diet of fish, mollusks, and insects from the rice paddies. The estrangement deepens the gap between industrializing and agrarian Taiwan, inhibiting memories of agrarian Taiwan as a hybrid life-world of harmony between human and nature. A prototype of “permaculture,” the Asian rice paddy is an agricultural ecosystem in which people not only coexist peacefully with the fish, mollusks, and insects living among the rice crop, but value them as part of their sustenance, as weed control, as fertilizing agents, and as a form of waste management. To stroll down glocal (global-local) memory lane, such a life-world inspired Franklin Hiram King (1848-1911), the first promotor of permaculture, to author the agriculture standard *Farmers of Forty Centuries, or Permanent Agriculture in China, Korea, and Japan* (1911).

In stark contrast to the agrichemical-driven mentality of the Green Revolution, some “new” practices of the Organic Movement, such as keeping fish and ducks as a means of “biological control” in rice paddies, or using apple snails to control weeds, seek a kinder reconciliation with the apple snail. Such actions imply that the apple snail is no longer so inherently alien that it cannot be integrated into the ecosystem. But instead of reminding people of the permaculture practices of Taiwan’s not-so-distant past, placing fish and ducks into the rice paddies has only provided evidence of our profound alienation from the past. Because age-old practices of keeping fish and ducks alongside the rice crop have been forgotten, these practices have only managed to gain persuasive power in a contemporary context by donning the new gown of “science,” or “best practices from Japan.” Yet, before being scientifically labeled “biological control” or “Integrated Pest Management,” use of ducks and fish was part of the instinctual reaction and skill set of people in an era when small fish, frogs, and native aquatic snails constituted a complex ecosystem in the paddies.<sup>9</sup> These practices are, sometimes unconsciously, regarded as new in the current organic era. The fact that these traditions have to now find their way back to our consciousness in the form of foreign cultural practices or through the universal language of science reveals our deep desire for our history, a desire continually deepened by profound alienation and loss of memory.

In addition to exposing our separation from our past, the organic movement also exposes the separation between different generations of farm workers. The younger generation of organic farmers, many of whom quit city jobs to return to the land, have an uneasy relationship with older farmers. After decades of immersion in the Green Revolution’s “enlightened” ways, the older generation had routinized the use of chemical fertilizers and pesticides as if it were *the* superior farming technique since time immemorial. This inter-generational alienation prompted the new organic agriculture to reinvent the wheel through access to empirical field experimentation drawn from their own trial and error, or through reading findings of agriculture research institutions both at home and abroad, a practice that contributed to the organic food movement’s exoticism and gentrified style.

It has taken this paper a long way to explain the importance of recognizing that history and memories are registered in the exotic-style storefronts of the organic shops, in the

borrowing of best practices from Japan, the U.S., and Europe, and in the desire to regain a paradise of environmental purity. In the particularities of the organic food movement's responses to the narrative of innocence lost, in its consumerism, exoticism, and stylistic emphasis on the spectacle of gentrified, clean comfort, we see memories that bear witness to what remains beyond global capital flow.

In recognizing the history of the organic movement that has resulted in today's exotic style, we learn how our actions relate to memories, even unconsciously, of our experience. To recollect could free us from the bust and boom cycle of the economic miracle, and of an amnesiac consumerist existence. We may gain the ability to recognize sites of memories that call out to us in material and immaterial ways. We will see:

1. history and memories are registered in broken, tense human relationships: in people's alienation from the land, from the older generation, and from our agrarian past.
2. history and memories are registered in the material remains of the Green Revolution production boom: in the forms of depleted soil productivity, depleted and polluted ground water, ruptured ecosystems that invite invasive species, and residual agrichemical toxins in organisms (people, animals, etc.) and the environment.
3. furthermore, in such unlikely places as the exotic style and storefronts of organic shops, history and memories are registered as a strong desire to escape the kind of memories outlined above.

Viewing global histories and memories through a hybrid glocal perspective, we encounter an unintended full circle effect: In response to Franklin Hiram King's 1911 homage to the life-world of Asian rice culture as a counterexample to agrichemical-driven farming, Taiwan conjured cultural memories of radicalist traditions from the 1960s U.S., from the margins of industrialized Japan, and from European provincial life. Even if these memories only materialize in the form of commercialized pastiche, the manner of remembering enacted by the exotic storefronts of Taiwan's organic shops is more than just another cultural colonization of the West. This particular aesthetic commemorates the 1960s organic movement in the U.S. and other radicalist movements worldwide, a history suppressed in the cultural memory of the Global Industrialized North.

Completing the circle, singer-songwriter Hou Dejian's 1975 song, "Loach-Catching," offers its own tribute to the Taiwanese agrarian life-world. In the song, Hou recalls tales of catching loach (*Misgurnus anguillicaudatus*) in rice paddies:

The pond water overflows and the rain has just stopped  
 Loach fish is everywhere in the soft mud of the rice paddies  
 Daily I have been waiting, waiting for your taking me to catch loach  
 Big brother, please, take me to catch loach.  
 Little Niu's brother has taken him to catch loach.  
 Big brother, please, take me to catch loach . . .

The lighthearted, childlike melody of "Loach-Catching" evokes the deliciously innocent happiness of living in Taiwan's diverse agrarian life-world. The song reflects an experience of countless generations of people in Taiwan, and presumably of Hou Dejian's own childhood, that was very likely still occurring in the rice paddies of 1975.

Adding to the echoes of memory, in 1983, only eight years after "Loach-Catching,"

Taiwanese vocalist Su Rui offered her sober pleas over the unsettling rhythm of “Identical Moonlight,” crying out:

Since when do the songs of frogs and bugs exist  
Only as memory? Since when is my hometown swarmed  
By towering skyscrapers? Rainbow-color neon  
Dyes the night sky with so much vulgarity  
[ . . . ]  
Who can tell me  
Who can tell me  
Is it that we changed the world  
Or the world changed you and me? . . .

These echoes of an abruptly changed world are repeated in the daily act of shopping in Taiwan and worldwide, when shoppers accustomed to supermarket filleted fish would not find small fish such as the Asian rice paddies’ loach an appetizing food item.

The situations listed above are forms/sites of memory left in the wake of global capital flow. Reclaiming these paths of memory enables us to tell those with shared experiences around the world that we are not polluted; rather, we are used and disregarded by the global capital and we owe it to ourselves to accept all the “broken” fragments as parts of ourselves. We must be cautious so as not to simply seek transcendence or ignore a complex history and human longing by merely pacifying it with a new injection of capital.

The organic movement places people in Taiwan at a crossroads. They can seek solace in purchasing organic food and its comforting marketing rhetoric to the point of alienating themselves from the silent environmental crisis surrounding them on a daily basis, or they can confront the polluted land and know that it is not simply a contaminated thing in need of purification. Instead, the land is the material remains of the Green Revolution’s production boom. Since the Green Revolution’s profit was reaped, people have continued to pay in different forms: in depleted soil productivity, in dwindling and polluted ground water, in a ruptured ecology that invites invasive species, in residual agrichemical toxins in organisms (people, animals, etc.), and more. We may also witness that our lot is no different from the apple snail’s: no longer profitable, but still alive and continually seeking a way to live within, and in peace with, a complex, hybrid environment that is both dead and alive, neither completely global nor wholly local.

By considering sites of memory, my aim is to emphasize the need to engage with the land, the material remains, and the structure of feelings left behind by the movement of global capital. The dominant memory of agrarian Taiwan as an abstract binary of pure vs. polluted conceals the land-based, non-human-centered memory of depleted soil, receding water table, and chronic agrichemical residue. An examination of these potential sites of memory reveals how the economic miracle, with its arrival and departure of global capital, indeed left something behind.

Even when we think we cannot remember what was taken and what was left behind in the name of economic progress, there are sites of memories that tell us who we were and what we have become. We should not have to purify this “impure” hybrid history of ourselves as alien to our own environment in order to love each other, the land, and our-

selves. Indeed, by looking into our alienated state and potential sites of memories, we may recognize that we are not only the greedy merchant but also the apple snail; if the greedy merchant has walked away with profit or loss, what about the apple snails that are no longer profitable, but still alive? How do we find ways to live with the apple snail inside us?

If the apple snail can tell our story as well as its own, what stories will it tell? It does not have a coherent narrative, but a storyline of fragmented sites of memories, blurring the line between an ecological life-world of permaculture or an agrichemical-driven eradication model. The story of the apple snail calls attention to the divide between two paradigms, and to the complex interrelation of the global and the local, of the human and the snail. Its story will be that of an alien in search of a home, when the way home can only be found in a grain of organic rice.

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**NOTES**

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2. My archival research uses the online version of *United News Daily*. I used Fushouluo or Jinbaoluo as keywords and went through all related news articles chronologically. As for citation style, I will be citing references to these news articles by indicating the *United News Daily* as LHB and then include year, month, date and section.
3. LHB 1982/08/13 Section 12; LHB 1982/07/22 Section 03; LHB 1986/04/20 Section 03; LHB 1986/04/20 Section 03; LHB 1995/08/20 Section 06; LHB 1997/11/11 Section 37; LHB 2004/04/19 Section A3.
4. The apple snail is still eaten as a delicacy in many parts of China and Asia. So the claim that it did not suit local taste was a hyper-reality created from the news media's repetition of the claim. In Taiwan, by the 1990s, no one would eat apple snails. Beyond its legendary unsatisfying texture, the aquatic snail was believed—thanks to the false reality promoted by the new media—to host thousands of kinds of disease-inducing microbes. If these are not reasons enough to deter a Taiwanese diner from apple snails, the reality that the rice paddies in Taiwan have become so loaded with agrichemicals that it could cause skin rash on contact makes eating apple snails out of the question.
5. Examples can be found in LHB 1983/10/22 Section 7 and LHB 1989/08/04 section 15.
6. This trend mirrors the U.S. organic food movement's commercial turn, with the major difference being that the U.S. organic food suppliers are being concentrated into a few hands and the production increasingly follows a large scale, industrial model (Ikerd 2011).
7. Research Institute of Organic Agriculture FiBL and International Federation of Organic Agriculture Movements IFOAM. Organic agricultural land (in-conversion and fully converted areas) by country; Share of total agricultural land 2005-2010. Organic-World.net, maintained by FiBL, Frick, Switzerland <http://www.organic-world.net> Last update: February 23, 2012.
8. Data quoted from "Taiwan: OTA's Go to Market Report" Global Organic Trade Guide: March 1, 2014. Accessed December 20, 2014.
9. The Qintan village in Zhejiang China (浙江青田) has been recognized as a world heritage site for the village's tradition of having fish in rice paddies (Shao and Wu 2010 and Chen 2006). Likewise, tribal farmers in the Philippines were reported to supplement their diets with fish, mollusks, and edible weeds collected by women from the rice paddies (Solimen and Gayao 2006). All these cases give everyday details to the nature of subsistence farming and testify that such a life-world existed—even if unevenly—before the Green Revolution. In the case of the Philippines, indigenous farmers reported by their own account to have worse health conditions as a result of the use of agrichemicals and incorporation of commercial agriculture products.